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THE VALUE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION TO THE HEALTH OFFICER

A COPY of this JOURNAL which you hold in your hands at this moment will be read by every full-time health officer in the United States and Canada, and by a large number of part-time health officers as well. It is appropriate, therefore, to recount here briefly the value of the Association which the JOURNAL represents, to this branch of the public health profession. Perhaps the simplest way of doing this is to set down the various services performed by the Association, with a brief paragraph in explanation of each:

THIS JOURNAL is the official organ of the Association. It publishes monthly authoritative articles on various phases of public health, and contains the best papers delivered at the annual meetings. For many years its bound volumes have been standard reference works in the public health field. The associate editors of the JOURNAL are all leaders in their branches of public health. Each month they prepare abstracts of the important articles dealing with public health which have appeared in other journals. Matters of general interest, and significant events are dealt with in the editorial columns.

There are nine Sections, or divisions, in the Association. These Sections are on Public Health Administration, Laboratory, Sanitary Engineering, Food and Drugs, Industrial Hygiene, Vital Statistics, Child Hygiene, Health Education and Publicity, and Public Health Nursing. Every month the JOURNAL carries notes and papers of interest to these special groups. Because every phase of public health is covered in the JOURNAL, a monthly perusal of it ensures a broad general knowledge of the best public health procedures, and specific knowledge of the branch in which you are most interested. The JOURNAL is free to every member of the Association and forms our chief medium of communication.

THE BOOK DEPARTMENT is a service to Association members. When it is considered that there are some ninety publishers of health books, including the Association itself, and when it is further considered that many titles of health books bear a close resemblance to one another—for instance, "Public Health and Hygiene," by Park, and "Hygiene and Public Health," by Parkes and Kenwood—the difficulties of locating the exact book one requires are apparent. The ordinary book store is not familiar with a wide field of books on health. Such a special subject demands handling by a specialist, and to meet this demand the Association's Book Department was established. Any number of books, from any number of publishers, on any number of subjects, may be

ordered through the Association in one operation, and by making out only one check. The Book Department will search out names of authors and locate publishers; even though you have only the scantiest information about the book you want. This service is performed without any additional cost whatsoever, publishers' list prices only being charged for books. A bibliography covering over six hundred titles has been prepared by the Book Department and will be sent to anyone on request.

AN EMPLOYMENT BUREAU for public health workers is conducted by the Association, and notices of positions open, and workers available are published each month in the JOURNAL. The names of all correspondents with the Bureau are kept in strict confidence. In addition to the published announcements, health workers living in the vicinity of the Association offices, and out-of-towners when they happen to be in New York City, occasionally drop in to tell about workers needed, or to ask about openings. In this way, we learn about positions not advertised in the JOURNAL, and this information is available to our members at all times.

INFORMATION is required by health officers in the conduct of their work. Such information cannot always be readily found in textbooks, and search for it may involve much correspondence. The Association, therefore, endeavors to secure for its members advice on problems that may confront them. An example of this service is a recent communication from a health officer who was to defend a case in court brought by a family to enjoin him from enforcing vaccination. The Association was able to give him, before his case was called for a hearing, full information concerning recent decisions on similar cases that had been tried elsewhere. This information, from an authoritative source, assisted the health officer in winning his case.

HEALTH DEPARTMENT PRACTICE has been exhaustively studied by a committee of the Association. This has provided a manual of invaluable information, and in order to make this information readily available to the health officer, a Field Director has been engaged, who is at the service of health officers who may wish to improve their departments. His help to city health officers can be rendered in one or more of the following ways:

1. In securing for the city health officer, either by correspondence or personal visit, the specific plans and details of some particular piece of work carried on in another city in which he may have a special interest.

2. In conferring with the city health officer with reference to his plan of work, pointing out to him (to no one else) where his plan seems to be in line with prevailing practices, and where it deviates from generally accepted principles.

3. In utilizing the influence and support of the American Public Health Association where it may be found helpful to the local officer for securing better provisions in the form of appropriation and personnel for making his organization and plan of work more adequate to the needs of his city.

4. In bringing to the assistance of a successful health administration, when threatened without justification by disorganizing influences and agencies, the professional support of our Association.

Other committees of the Association are constantly at work studying various problems that the health officer must handle. These committees are composed of the men best informed on the various subjects involved, and the report of their committees, therefore, can be taken as highly authoritative. These committee reports are presented at annual meetings where they are discussed, and amended if necessary. Subsequently, they are published in the JOURNAL, so that the information they contain may be permanently available to all.

THE COMMITTEE on Standard Methods is one of the most important of these committees. Its work consists principally in the preparation of the book known as "Standard Methods of Water Analysis." It also prepares text for "Standard Methods of Milk Analysis." These reports are published by the Association, and they have become the official methods of public health laboratories throughout the country. Analyses of water, sewage and milk, according to these standard methods, are accepted as authoritative in courts of law.

THE ANNUAL MEETING of the Association is the leading congress on public health in North America. It provides the only forum in which health workers, medical and non-medical, official and unofficial, lay and professional, meet regularly on a common ground to discuss all phases of public health problems. There are medical conferences on public health. There are the meetings of highly specialized health workers on their specialties; there are the meetings of unofficial health organizations; there are conferences between the federal and the state health officers; but there is only one organization which affords an opportunity for federal, state, and local health officials to meet on a common ground with each other and with the representatives and employees of unofficial and voluntary agencies. There is only one organization in which doctors, sanitary engineers, chemists, public-health nurses and other health workers meet and discuss public health problems, and that organization is the American Public Health Association. No other organization is so representative of all the groups which make up our complex public health activity. Registration at the annual meetings in recent years has varied from eight hundred to one thousand. At the 1923 convention, every state in the Union was represented, Canada and England, and seven foreign countries. At the twenty-nine sessions, one hundred and five papers were presented. It will be seen that the annual meetings afford an unusual opportunity for exchange of ideas, and for the securing of help in problems of various kinds.

THE AMERICAN PUBLIC HEALTH ASSOCIATION is an essential part of the public health machinery of the continent. It is essential in the handling of the public health problem for the reason that it, and it alone, furnishes the common ground on which all of the various public health interests, the scientific and the administrative agencies, investigators and officials, come together in a great clearing house of experience and into dynamic contact with the inspiration of mass psychology.

The history of the Association is one of glorious achievement. It is the history of the development of public health itself. A roll call of its older and earlier members includes the names of all the great figures whose constructive genius built our health departments. The contributions of its members in research made possible the great saving of lives which is shown by our phenomenal reduction in death rates. These contributions not only revolutionized public health practice in this country, but set an example of method and procedure which has been copied in all parts of the world. The best way of approximating the Association's contribution to progress is to reflect upon what would have been the course of events had some particular agency of large and general influence not existed. If the work for which the Association is to be credited had not been done, what would be the present status of public health work? To answer this question is to weigh the influence and the work of the Association during its existence of fifty years. It seems safe to say that had the work not been done, the present development of public health work would be at least five years behind where it is at the present moment. The American Public Health Association has kept pace step by step

with the evolution of public health work in this country, and now the time has arrived for it to attack the two great obstacles to public health progress. These are insecurity of tenure and inadequate compensation of health officers. No single step promises so much in surmounting these obstacles as the establishment and recognition of a public health profession, and it is to this end that the work of the Association has been dedicated since its reorganization in 1922.

THERE is not a health officer in this country, conscious or unconscious of the fact, who has not been tremendously helped in his work through the influence of the American Public Health Association. There is not a health officer in this country whose work and status will not be benefited by the future influence of the American Public Health Association. This is the one association which should command and secure the support of the health officer. In no other organization will he find the same sympathetic understanding of his difficulties; in no other group will he secure, to such a large degree, practical help; and nowhere else will he find an equal number of men who are working towards the same ideal for which he is striving.

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REPORT OF THE COMMITTEE ON MUNICIPAL HEALTH DEPARTMENT PRACTICE

Presented to the Public Health Administration Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 9, 1923.

IN VIEW of the need for authentic information in regard to the tendencies and relative values of current developments in official health procedure, the American Public Health Association in 1920 appointed a Committee on Municipal Health Department Practice with the assurance that certain initial studies to be made along this line would be aided by the generous financial assistance of the Metropolitan Life Insurance Company. The Committee at the outset limited its work to the 83 cities in the United States of approximately 100,000 population or over in 1920. A survey of the administrative health machinery of each of these cities was made during the year 1921 by members or representatives of the Committee[1] on the basis of a detailed schedule including over 600 items. Some of the general results of this study were presented in preliminary form at the 1921 meeting in New York.[2] The complete analysis of the material and its preparation for publication proved a time-consuming task; but a second report was made at the 1922 meeting in Cleveland and a number of individual chapters of the Committee's report, dealing with particular phases of health department practice have been published during the past year.[3] The complete report has now at last passed through the press and has appeared during the past month as a special bulletin of the United States Public Health Service.[4]

The objectives contemplated by the Committee on Municipal Health Department Practice seemed so important to the American Public Health Association that they were given a position of primary significance in the report of the Committee on Reorganization;[5] adopted as a basis for the fundamental policies of the Association at the Cleveland meeting. Thus in the section of the Reorganization

1. Appreciative record should be made of the assistance generously furnished by the United States Public Health Service and by the American Red Cross in the conduct of these surveys.

2. A. J. P. H., XII, 7-15, 138-147, January and February, 1922.

3. Milk Inspection, I. V. Hiscock, A. J. P. H., XII, 577-591, July, 1922. Vital Statistics, L. I. Dublin, A. J. P. H., XII, 750-757, September, 1922. Water Supplies, A. W. Freeman, A. J. P. H., XII, 759-763, September, 1922. Public Health Education, G. Amundsen, A. J. P. H., XII, 815-825, October, 1922. Public Health Nursing, C.-E. A. Winslow and M. Burkhardt, Public Health Nurse, October, 1922, pp. 514-520. An Ideal Health Department for a City of 100,000 Population, C.-E. A. Winslow and H. L. Harris, A. J. P. H., XII, 891-907. Tuberculosis, C.-E. A. Winslow and G. F. Baker, American Review of Tuberculosis, December, 1923, pp. 960-973. Administration of Health Departments, A. W. Freeman, A. J. P. H., XIII, 163-181, March, 1923. School Health Supervision, I. V. Hiscock and W. T. Fales, A. J. P. H., XIII, 259-269, April, 1923. Expenditures of Health Departments, W. T. Fales, A. J. P. H., XIII, 441-458, June, 1923. Venereal Disease, M. A. Clark, Journal of Social Hygiene, IX, 27, 1923.

4. Public Health Bulletin 136.

5. A. J. P. H., XII, p. 987, December, 1922.

Committee's report dealing with Inter-Convention Activities, paragraph A, *General Objectives*, reads as follows: "The objectives of the Association should be the preparation, study, standardization, and presentation of scientific public-health procedures, the best method by which such knowledge can be given to the public, and the expression to the public of professional opinion in regard to such procedures." Later on, under Section C, *Information File*, the report recommends "that there be maintained at the central office of the Association such records as are obtainable and can be kept current with regard to the organization, expenses, procedures and results of public-health practice in organized health departments in countries represented in our membership."

In line with the policies thus formulated, your Committee on Municipal Health Department Practice first of all set out to realize the ideal of a central clearing house for current information in regard to health department practice as suggested in the paragraph quoted above from the report of the Committee on Reorganization. Various possibilities suggested themselves along this line. It is most desirable that the studies begun by the Committee in the large cities of the United States should be extended to the large cities of Canada, Cuba, and Mexico, to the smaller communities—whose need for standardization is perhaps even greater than in the case of the large cities—and to the state and provincial health departments. It seemed to the Committee, however, that the natural and logical first step was to provide for the keeping up to date of the information already secured at considerable cost in regard to the large cities of the United States. The United States Public Health Service was, in our judgment, the logical body to lead in this work in view of its general program and policies and in view of the service which it has rendered to so many individual communities in the line of counsel as to administrative health procedure. The matter was therefore presented to Surgeon-General Cumming and it is a source of great satisfaction to be able to report that General Cumming has agreed to establish within the United States Public Health Service an office of Administrative Health Practice and has assigned to the direction of this work Surgeon Paul Preble, whose experience in health survey work fits him in a unique fashion for this task. Dr. Preble will outline his plans in the subsequent discussion and it is only necessary for us to say further that the records now in the possession of the Committee on Municipal Health Department Practice have been made available for the new office of the United States Public Health Service, located for the present in Baltimore, and that the information obtained by the Service in the future will, through the courtesy of General Cumming, at all times be at the disposal of the members of the American Public Health Association. One of our ideals, the establishment of a clearing house for current information in regard to health department practice, can be substantially realized by the transference of such data as may be required to a central file at the executive office of the Association.

In addition to the collection and dissemination of information in regard to current procedures it was felt that something more was necessary. As we understand the aims of the members of this Association they desire a clear picture of present conditions chiefly in order that those conditions may be improved in the future. Public health practice is in a dynamic, not a static condition. The object of the health official is to improve the machinery now at his disposal so as to raise it to the highest point of efficiency, and to supplement that machinery by obtaining new appropriations sufficient to make his organization meet the requirements of the new public health. It has seemed to your Committee that the most important service which the American Public Health Association could possibly render to its members would be to establish a direct field service for the assistance of the executive officers of health departments along the lines laid down above. The Committee therefore set out to obtain the funds necessary for the establishment of a service of this sort and was once more fortunate in securing the assistance of the Metropolitan Life Insurance Company, which has guaranteed the sum of $15,000 necessary to carry on the work for the year 1923-24. It is with the keenest satisfaction that we announce that Dr. W. S. Rankin, State Health Officer of North Carolina, and past President of the American Public Health Association, has obtained leave of absence from his state to undertake this work, which he has already attacked with vision and enthusiasm, and to which he will devote his full time after the first of January. No more convincing evidence could be

found of the importance of this work and no better augury could be offered for its success than is found in the fact that Dr. Rankin has been willing to undertake it.

As Field Director of the Committee on Municipal Health Department Practice, Dr. Rankin will be at the service of the individual members of the American Public Health Association in aiding them through correspondence, personal visits, and special surveys, to build up the status of public health work in their individual communities.

Your Committee has felt that it would be of inestimable value to the health officer who is striving to secure moral and financial backing for a constructive public health program if there were available not only objective standards by which the need for a rounded health program could be demonstrated but also some definite machinery by which such standards could be brought to the attention of municipal officials and the general public. We have felt it to be essential to the success of our objectives to create machinery of this sort. As a first step it has seemed that a spirit of generous rivalry between communities could be promoted by offering a series of medals in recognition of attainment and advancement in community health service. The first series of these medals (gold, silver, and bronze) we suggest may be awarded at the 1924 meeting of the American Public Health Association to the three cities of a population of 100,000 and upward, which can show the most nearly adequate community health service as of January, 1924. The status of the different cities should be determined by personal surveys to be conducted by representative agents of the Committee, rated on a scoring plan which will be presented by Dr. Rankin during the present discussion for your consideration. The scoring should take into account all health agencies forming a part of the community health program (voluntary as well as official). It is the purpose of the Committee that in awarding similar medals in succeeding years the selection of the winners in the competition will be based not only on actual attainment, but also on progress since January, 1924, and it is hoped that scholarships or other methods of recognizing eminent personal accomplishment, as well as community achievement, may be introduced in the future to develop a spirit of emulation in health services throughout the country.

Your Committee fully realizes the difficulties involved in such a program and the importance of so carrying it out that the health officer who desires aid in the stimulation of local public opinion may receive such aid without the possibility of inviting criticism of any other health department which for any reason fails to measure up to the highest standards. It is for this reason that we have taken no steps to carry out our plan in detail until we had the opportunity at this meeting for a full and frank consultation with the health officers of the country.

We have felt that any public statement of grades of individual health departments on a 1, 2, 3 basis or the expression of their merits in terms of an arbitrary score card would be clearly out of the question. It is our hope that ultimately a classification of departments into a small number of grades may perhaps be feasible; but for the present we believe it would be best to limit ourselves to the recognition of notably distinctive service without any attempt to evaluate the work of departments whose progress has been limited. In regard to this matter, however, we hope to have the opinions of the members of the Association expressed in the course of the following discussion.

The basis on which health department practice shall be judged is a second point of perhaps even greater importance than the nature of the recognition to be granted. It is clear that the system of grading to be used must be sufficiently elastic to take account of local variations in the nature of the health problems to be dealt with and of the part played in a given community by voluntary agencies. The Committee has given careful thought to these problems during the past six months but has refrained from adopting any definite policy until your counsel could be obtained.

In one respect, your Committee feels that its own personnel needs to be strengthened in order to deal with the problems involved in the proposed program. Its membership at present includes but one municipal health officer in active service and one other member who has served in the past as health officer of a large city. We believe that several new members with direct municipal administrative experience should be added to our numbers and have requested authority from the Governing Council for the addition of such new members to the Committee.

If the American Public Health Association is to fulfill its largest possibilities we are con-

vinced that the work of standardizing and stimulating health department practice must be extended to the large cities of Canada, Cuba and Mexico, to small communities, to counties and to state and provincial health departments. So soon as funds are available these tasks, too, should be undertaken. So far, however, as the problem primarily presented to the Committee is concerned we believe that the program worked out through the coöperation of the United States Public Health Service and the Metropolitan Life Insurance Company constitutes an encouraging report of progress. We feel that the American Public Health Association, in initiating and supporting the activities of the past three years for the improvement of the character of the service which its members render to their communities has shown a vision and a sense of public responsibility characteristic of the highest type of professional spirit; and that the program if carried forward in the future will result in far-reaching improvements of the public health service and in a substantial reduction in the burden of preventable disease and death.

D. B. ARMSTRONG.
C. V. CHAPIN.
H. EMERSON.
A. W. FREEMAN.
W. H. FROST.
L. R. THOMPSON.
C.-E. A. WINSLOW, *Chairman.*
L. I. DUBLIN, *Secretary.*

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Who Pays for the Accidents.—It seems that one of the main reasons why there are so many accidents is that there is so little general knowledge regarding their causes and costs. The author analyzed the complete accident and medical reports of two large metal mining companies which carry their own insurance. Both maintained hospitals with competent medical attendants. The analysis showed that 48.1 per cent of the injuries occur during the first two months of employment, and also that 20.5 per cent of the injuries occur during the first week. Therefore, many of the accidents occur before the man has become accustomed to the work in that particular mine. Consequently, if the work is on a contract basis, as the majority of it was in these two mines, the man had not become trained enough to reach his maximum earning capacity, or to give the company full value for the money being paid him.

The mining industry will most quickly lessen the hazards of mining by keeping uniform accident records that will facilitate the scientific study of accident prevention by companies working individually or in coöperation with other companies and with State and Federal safety organizations.—Richard V. Ageton, *Reports of Invest.*, U. S. Bur. of Mines, Serial No. 2535, 4 pages (October) 1923.

FULL-TIME HEALTH OFFICERS

JOHN W. S. MCCULLOUGH, M.D., D.P.H.

Chief Officer of Health of Ontario, Toronto, Canada

Chairman's Address read before the Public Health Administration Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 8, 1923.

IN CONSIDERING a subject for my address it occurred to me to discuss what, in my opinion, is the greatest need at present for the advancement of public health in North America. Considering the situation at the present time the conclusion has been reached that our greatest need is a competent full-time directing head of a health department with an efficient organization, whether it be in the state, the county or the municipality. Public health is a large business and some of us at least may be of the opinion that the advancement of public health is one of the most important if not *the* most important business of the state.

In order to ascertain the situation in respect to this subject, information was sought in the United States, Great Britain and Canada, in respect to the methods of county or municipal health administration, the approximate salary of the medical officer of health, if there was a fixed tenure of office for this officer and if any state or federal aid was afforded for local health administration.

For the United States, fairly complete information was obtained from 47 states or districts. According to this information there are nine states without any full-time local health officers. The large majority of these states have full-time officers in the larger cities where as a rule the organization and the work carried on are of the highest character. One southern state has 17 full-time health officers. In a few states there are as many as 4 to 8 full-time municipal health officers, but in general the work of local public health administration, particularly in the smaller cities, towns and rural areas, is maintained by part-time men whose real lifework is not public health, but the practice of their profession.

According to the figures collected by Dr. Ferrell, there were in 1914 but three full-time county health officers in the United States. The situation at the present time shows a marked improvement, there being, according to these figures, 241 full-time county health officers in the United States, of whom 120 are in the southern states, the remainder scattered over the northern and western areas.

In the United States there is no fixed tenure of office and in many cases the appointment of the medical officer of health seems to be in the hands of the mayors of cities or other authorities. Changes are frequent and the salaries paid part-time men are very low. Some states afford aid to the counties for nurses and health officers, and there is certain federal aid for venereal disease and maternal and infant hygiene.

In Canada the same general conditions are found. The larger cities have full-time officers with excellent public health organization. Certain of the provinces have full-time health officers covering large areas, and public health nurses whose services are utilized chiefly in educational propaganda, but the health work of the smaller towns, villages and rural areas is carried on by part-time practicing physicians much in the fashion which prevails in the United States.

One province of Canada has fixed tenure of office for all health officers; that is to say, these officers cannot be dismissed without the consent of the Provincial Board of Health. All the provinces receive federal aid in proportion to population for venereal disease clinics,

the amount received being supplemented by provincial grants of an equal amount. There is a voluntary association for tuberculosis prevention supported chiefly by federal aid. All the provinces assist their respective municipalities financially in venereal disease prevention and treatment and in the free distribution of vaccines and sera used in communicable diseases.

In England and Scotland the part-time system has been on trial longer than in any other country. This plan has proven unsatisfactory and is being replaced by the appointment under the Ministry of Health of full-time fully qualified health officers in what is known as the "combined area," this being a county or part of a county with its towns and villages. In Scotland the Diploma of Public Health is a necessary qualification for the Medical Officer of Health, and in England this qualification is being adopted in the larger centers and in many of the "combined areas." In the latter country one-half the salary of the Medical Officer of Health is borne by the Ministry of Health which exercises considerable control in the appointment and in the work of the local officer.

There is fixed tenure of office as the Medical Officer of Health cannot be dismissed except with the consent of the central authority. In addition to the financial assistance afforded in the matter of salary there is considerable aid given local areas in the support of tuberculosis and child clinics and 75 per cent of the cost of venereal disease treatment is afforded by the Ministry of Health.

In none of these countries is the system of public health organization entirely satisfactory. Of the countries studied, England has had the longest experience. She has profited by the errors of the past and because of her comparatively small area, open climate and compact population, is probably in the position of being able more easily than the others of carrying on what seems to be the best basis of a complete and adequate public health administration.

In order to illustrate the defective character of public health administration as it exists at present, it is proposed briefly to describe the situation in the Province of Ontario, this area being selected because the writer knows the conditions there and because these conditions are probably no worse and no better than those in existence in general all over North America.

The province has an area of upwards of 400,000 square miles, reaching along the Great Lakes for a distance of 2,000 miles. About one-fifth of this area is organized into municipalities. The population is 3,000,000, most of which is found in the older settled portion along the Great Lakes and adjacent to the lines of transcontinental railway.

The provincial health administration is nominally in the hands of a Board of Health under a Minister of the Government and embraces all public health activities except medical inspection of schools, which at present, with the exception of one or two cities, is under the direction of the Education Department, and the administration of hospitals for the insane, which is under the direction of the department controlling hospitals. These activities will, it is expected, be shortly transferred to the Health Department. The administration of the public health work is under the direct control of the Chief Officer of Health, assisted by the Directors of Divisions of Laboratories, Maternal and Child Hygiene and Public Health Nursing, Sanitary Engineering, Preventable Diseases, Industrial Hygiene and Public Health Education. Vital Statistics is a separate department but under the same controlling head and operating from the same offices.

The field work is supervised by eight full-time District Officers of Health, five sanitary inspectors and seventeen trained public health nurses.

There are eight public health labora-

tories, and all divisional heads and their assistants are trained men, who participate in a superannuation scheme and whose tenure of office is continuous. In all, 27 physicians, 6 chemists, 4 bacteriologists and 10 engineers are employed. The annual appropriation is upwards of $600,000.

Public health administration in the cities, towns, villages and rural areas is by means of local boards of health and medical officers of health appointed by the local authorities. The tenure of office of the medical officers of health is continuous, subject to the approval of the Provincial Board of Health. The weak spot in the system is the fact that out of 904 medical officers of health, but *ten* are full-time men, the balance being practicing physicians, largely without public health training, poorly paid, whose business in life is not public health work, but the practice of their profession. Not alone these factors interfere with the satisfactory maintenance of public health work, but in addition the practicing physician, even if he has the necessary training, is hampered in the prosecution of his duty by the danger of loss of practice, the jealousy and want of coöperation on behalf of his confreres with whom he is in competition in practice and the unpopularity of the coercive measures sometimes necessary in the control of communicable diseases.

The amount spent for salaries of medical officers of health in the ten full-time municipalities is approximately $40,000, and for the part-time services about $108,000. The municipalities employing full-time officers spend approximately one and one-quarter millions, and the part-time places $217,000. The average expenditure per head in the full-time cities is $1.25 and the remaining municipalities spend an average of 23c per head of population. The highest salary paid is $8,000, and the average for part-time men ranges from $30 to $276 per year. Some few part-time men receive $2,000, $1,500, $1,000, etc.

While it is admitted that a number of part-time men give a much better service than might be expected, considering their pay and the disabilities under which they work, it must be admitted that much of the money spent outside full-time places is wasted, because of the fact that most of the work done is not in prevention but in clearing up outbreaks of disease which might inexpensively have been nipped in the bud.

When one considers the results achieved under our present system it will be found that where there is a full-time active and competent medical officer he soon succeeds in building up a splendid organization, obtains the necessary funds and achieves the highest results in securing for the public pure water, sewerage facilities, clean milk, education of the public in public health, lowering of infant deaths, the prevention of disease and general reduction of the death rate. In the majority of the municipalities with a part-time service, results are most unsatisfactory. There is no well-directed effort in the lines of public health, outbreaks of disease are attacked at the wrong end; there is no education of the public along sanitary lines, and in short the service given is most inadequate and a great deal of the money spent is wasted.

In many of our counties, comprising as they do perhaps as many as 20 to 30 municipalities, each with a part-time medical officer of health, it is found that the aggregate annual expenditure reaches to 12 and 15 thousand dollars ($12,000 to $15,000), a sum which under proper direction would finance an active health organization productive of first-class results. As the present system is admittedly unsatisfactory, the object of this address is to gain the benefit of your experience and to endeavor to formulate some plan whereby full-time health officers and an adequate system of public health organization may be secured.

Turning to the experience of other countries, let me revert once again to that of England. As already stated, the part-

time officer has been tried there and found unsuitable. This plan is in operation generally in this country without, so far as I can learn, any better results than elsewhere. The result of English experience is the adoption of the full-time qualified medical officer of health for "combined areas" with government assistance. In the United States attempts have been made to educate the public in the value of up-to-date health organizations by the establishment of demonstration county organizations, the funds being supplied in various ways, such as by combined government, county and voluntary association aid, in the hope that the public, once seeing the value of the county organization would, when the demonstration periods were concluded, adopt the child and see to its future.

Another plan is to endeavor to educate county authorities to utilize the aggregate funds now being spent in the county as a whole for the purposes of a full-time organization for the county, with or without government aid. Other solutions of the subject may occur to you and it is hoped that the discussion of this address may have the effect of developing practical ideas of improved organization. If it is concluded that a practical plan is the development of the county or "combined area" type of organization, the difficulties in respect to such a plan must be considered.

Counties vary in size, some being too large and others too small for satisfactory and economic administration under one organization. This difficulty might be overcome by the division of large counties or by the amalgamation of small ones.

The difficulties of climate, of distance, of the means of transportation and character of country vary in different portions of this vast continent. Here and there these difficulties are stupendous but in one way and another they may be overcome by the ability, the genius and patience of the executive health officer.

The question of financial aid by the state or otherwise is invariably the most serious one and deserves careful consideration. While it is desirable that local autonomy should be retained and while there is some danger in affording state aid to municipalities, projects like health and education are of such vital importance to the nation that it is generally admitted that the principle of extending state aid in these matters is justified and will be supported by public opinion. The use of demonstration county organizations supported by the joint contributions of state, voluntary and local funds, is open to the objection that sooner or later some, at least, of this support will be withdrawn, and the deficit will fall upon the local authorities who, having once experienced the comfort of outside financial aid, will be loth to supply the deficiency. Generally speaking, if thought desirable to afford financial assistance to municipalities, such help should be of a *permanent and not of a temporary* character. It is always better to teach people to help themselves with the resources at their command than to finance their problems. Consequently the question arises: Is it not better to endeavor to encourage the county authorities to utilize the aggregate funds now being spent on public health work with or without some permanent state aid than on the other hand to encourage the establishment of demonstration county organizations by means of state and voluntary aid, some of which must necessarily be withdrawn in the future? It is admitted that the education of the public and of local authorities along these lines is a slow and often discouraging process, but as Sir Ronald Ross, in his great work on the malaria problem says, "The layman (reader) rules the world, we doctors are only helots. We advise, he snubs us; we advise again, and perhaps some day he listens to us." So from day to day we public health men can only do our duty in the hope that sooner or later the seed we sow may bloom blossoms and bring

forth almonds, if not in one night, at least in a succession of years.

When one considers the progress which has been made in public health organization in the last half century and more particularly in the period of our own professional lives, one is encouraged, but as Vaughan remarks in the preface to his excellent book, *Epidemiology and Public Health*, we must remember that "no armistice has been signed between man and disease . . . and we must not permit the elation due to past victories to make us less careful and thorough in preparation for the battles of the future."

DISCUSSION

Dr. George C. Ruhland (Milwaukee, Wis.): In discussing the chairman's most excellent and interesting paper, I should like to submit the following: In presenting to you the problem of the full-time health officer, the chairman unquestionably has presented a problem that is absolutely fundamental to public health work.

It scarcely needs much argument, I dare say, before an audience such as this, to explain why a full-time man is required and why a trained and experienced worker is necessary to carry forward the problems of modern health work.

The question that is particularly important in this consideration is this: why, granting that public health work demands full-time men, is it that we have relatively so few full-time workers?

There are, undoubtedly, several answers to this question. The one that is most fundamental is that, when all is said and done, the appointment to public health office is still essentially a political matter, and if it is a question of politics it is unfortunate that it carries with it the tenure of office. Under these circumstances it is not difficult to see that those who are asked to take the responsibility of public health service will treat that appointment somewhat as a side issue and not as *the* issue.

It has been exceedingly fortunate, I dare say, that in spite of these handicaps, there have been at all times men who by a peculiar preference for the work and because of unusual idealism of service have been willing to take up public health work. It has been because of the enthusiasm that these men have brought into the work, that public health work has been advanced to where it is at the present time. It is because of the progress that they have made possible that at the present time the public is beginning to realize that, after all, in public health work they are having something that gives them the biggest return for money spent in a public service. Especially, I believe, in smaller communities is this illustrated, because we find here that many of the smaller communities are willing to engage full-time public health officers on a contract basis, as a business proposition, and no longer by pure political preference. The fact that in many of these smaller communities they are also willing to pay salaries that measure up very well with those paid in larger cities, in some places even more so, is rather a hopeful sign. We may surely expect this tendency to grow.

Of course, it is a question of how soon this matter can be brought about. The lesson, however, is obvious, in my opinion. The first essential is that we must sell the idea of modern public health work to the public. The public will pay for service, but the public will not pay as long as it considers the health officership a political plum.

If they understood, as surely they must, that you will give them their money's worth, then undoubtedly we will find more commensurate compensation will be paid and more men will be attracted into public health work.

Whether the organization, as suggested by the speaker and as in existence in some of the provinces of Canada, whereby a central form of government makes the appointment of the local health officers is the best or not, will depend upon the form of organization. With a good central organization, I dare say that it is the ideal. Personally I lean strongly toward such a form of organization. In large cities there is a tendency toward home rule and health departments are generally much better financed. It seems questionable whether we will find the local health organizations surrendering the privileges of local rule.

Obviously there is a point that might well be considered. If we have a uniform centralized organization whereby federal authorities could directly participate in local health work, there is much, undoubtedly, that would be of advantage. Uniformity would be, for one thing, the outstanding factor. At the present time, at least in the states, we find that health

enforcement is not uniform as you go from state to state.

In smaller communities the difficulty of poor salaries, inadequate pay, can best be met by the so-called coöperative plan which is in practice in some localities, both in the East as well as the West, whereby several cities combine and jointly engage a health officer who will give them his full time at a living wage and with proportionately good service.

Dr. John G. Fitzgerald (Toronto, Ont.): I should like first of all to congratulate the reader of the paper on the excellent summary that he has prepared of the mass of material which I know has taken him a long time to gather and the summary that has been distributed in printed form this morning, as emphasizing certain of the high spots on this subject.

There is one aspect of the problem of full-time health officers which it seems bears consideration at this time, when the subject is in a very early stage of its development. If the part-time health officers are to be discarded everywhere in Britain and on this continent, I think it would be a very unfortunate thing if a useful place could not be found for them in the further development of public health work, and it seems to me there is such an opportunity before full-time health officers to direct the energies of physicians who now have been giving, or in the past have given, so badly paid and often perhaps inadequate service in administrative capacities.

It is quite true that physicians who ordinarily become part-time health officers are not trained for administrative public health work, but at the present time, and probably more in the future, they are being trained to take a place in corrective medicine. I feel it is very definitely a duty, as well as a function of these full-time health departments to see to it that the medical profession is given direction and guidance in the things that they may do in the purpose of public health in the community.

The present-day trend is to provide for persons in the community health supervision throughout their whole lives, beginning with the prenatal period, going through the preschool period; then through the school life, and then on through adult life. A great deal of this work will be done probably by physicians in practice. The inspiration for them to undertake such work, to stimulate them to do it, should come largely from the health department. They may not be capable and perhaps not qualified to undertake the administrative side, but it seems to me there is a place for them in that particular type of work. When the medical profession sees to it that the training of the medical students is properly done, when the medical profession lays proper stress on the preventive, as well as the curative, and gives them the practical work in their courses to see what the practice of prevention means, then the health administrators are going to find a helpful alliance in the medical profession, and they can not go very far without the enthusiastic support of the physicians in general and special practice.

Then there is one other subject that is of considerable moment at the present time; that is the control of certain communicable diseases about which we know a very great deal, conditions which at the present time should be completely under our control, for example, smallpox. It is not necessary to emphasize what has been occurring in the various parts of the world in the last three years. Physicians in many communities have been derelict in assisting in the control of smallpox, but it is not peculiarly or wholly a function of the full-time officer or the health department to control smallpox.

If the physician is impressed with the desirability and the wisdom of advising the parents in the families for which he is the physician, to have the children vaccinated in early life and revaccinated subsequently, a great deal would be done to bring smallpox under complete control, but physicians are not doing that at the present time. So I say that another very important auxiliary aid that can be rendered by the physician to the full-time health officer and the full-time health department is the conduct of work of that kind, for which he is qualified, but does not receive the necessary inspiration or encouragement. Often in his undergraduate training it is not stressed.

Dr. F. W. Sears (Syracuse, N. Y.): I simply wish to emphasize what Dr. Fitzgerald has said regarding the place which the physician has in public health work. I think one of our great neglects in the past has been that we considered public health work separate and apart from medicine, and the more work we can do to bring the family physician in touch with public health work, I believe, is not only an auxiliary, but the best thing we can do.

We did a little special work in our community. We had sold this proposition, and we polled our vote, and we knew we could

carry it. When the supervisors came together to discuss the matter we found the thing had gone down, simply because the family physician had told one of the members that it was too much expense for this kind of work. We were defeated by our own profession in that way.

The other bugbear was that offered by subsidiary organizations, "What are we going to do after that?"

I feel that our effort in public health work must be devoted more to teaching the family physician that public health is part of his job, and not to be delegated to the public health officers. I feel that there is the biggest problem we have at the present time.

Dr. Peters (Cincinnati, Ohio): I get a great deal of comfort out of this most timely paper by Dr. McCullough, and I thought a few remarks coming from Cincinnati might not be amiss.

I come from a city in which the full-time principle has been in effect for twelve years. Cincinnati is known for its strong and powerful political organization, and still that dominant power in politics thought that it was good business to take the health department out of politics. So in 1909, under the leadership of a very courageous man who was then the mayor of Cincinnati, John Galvin, deceased, the health department was taken out of politics, and made a separate unit in the city government, and since that time we have been able to develop a very excellent organization under the full-time principle. Dr. John H. Landis, deceased, became health officer in 1909, and it is largely through his effort that we have a very excellent, though, of course, under-staffed organization in our city.

Political changes have taken place, formerly every two years, and now every four, but the health department goes on undisturbed by these changes.

Every district physician, every food inspector, every sanitary officer, every public health nurse, in fact, every individual with just two exceptions, are full-time employees. Our clinicians in the Bureau of Venereal Diseases and in the Bureau for the Prevention of Tuberculosis are the only part-time men but they are part-time men because the clinics are not operated all day long.

Dr. L. D. Bristol (Cattaraugus County, N. Y.): I suppose every health officer has in mind some particular thing which he is able to accomplish during his administration, which he considers the most valuable.

While I am no longer a resident of the State of Maine, I feel that the chief accomplishment of my administration in that state was to get five additional communities to take up the local health officer system on a full-time basis. At the time I went there in 1917, only Portland and York had full-time health officers and at the present time I believe there are some seven or eight communities in the State of Maine employing full-time health officials.

As to the most important development among those units I believe the organization which is made up of a group of four or five small towns was the most valuable. In Maine, originally some five or six years ago there were upward of five hundred local boards of health. We outlined a plan which would reduce that number to not more than one hundred local boards of health, or as we termed them, one hundred health unions, and I believe under such a system the various small rural communities will be able to afford the services of a full-time trained health officer.

Dr. Ferrell (New York City): I have had an opportunity during the past eight or ten years to observe rather closely the development of local health organizations, particularly with the county as the unit of territory. I have failed to observe anywhere the satisfactory development of a county health service on a part-time basis. Where a physician looks to the practice of medicine as his permanent means of making a living, he is not going to be able to devote the time, energy and thought necessary to making the greatest success of his health work. If he has an opportunity to improve his own training, the chances are that he will attend clinics and take post-graduate courses in medicine. When a man becomes a full-time health officer and he finds opportunity for improving himself, making his work more useful in his field, he will then take special training in the field of public health.

I believe the time has come now when public health is as definitely a profession as the practice of medicine, and if we want to carry the work forward as rapidly as possible we must have men who understand the fundamentals of public health. They must be trained in the school of experience or in schools estab-

lished for the teaching of public health as we have schools established for the teaching of law or medicine or engineering.

The part-time man is at a great disadvantage. He is unable oftentimes to leave his headquarters simply because his practice means more in his monthly income than his compensation in his health office. The result is he holds himself in readiness for the call of patients, and he sells to the public that part of his time which he has been unable to market to private patients.

I believe that although the health officer should be a full-time man, trained for his work, he will make a great mistake if he doesn't utilize, as suggested by Dr. Fitzgerald, to the fullest extent, the coöperation and assistance in completing the task in preventive medicine of the private practitioner. To my mind the evidence favoring the full-time principle is so conclusive that there is really very little occasion for discussing the subject, as I see it.

One other principle discussed by Dr. McCullough is, I think, of fundamental importance, and that is the pay of all the health work out of public funds. I believe that one dollar of public funds is worth four or five dollars of funds obtained by private subscriptions, or from foundations or from any other than public sources. With too much money from volunteer organizations some time later the people expect outsiders or outside influences to come in and solve their problems, and that, of course, is very unwholesome. The work should be established as a public health organization. The major portion of the expense in my opinion should be derived from the local government. I believe that the best interest of the service will be served, however, if the financing is done on a partnership basis between the central health organization and the local health organization. That gives common ground for the discussion of procedures, permits coördination of activities, frequent conferences, understanding between the local forces and the central forces, and this in turn permits the extending of the value of efficient service in one section of the state or dominion to other localities.

If funds from private sources are used, in the pioneering stage, I think it should be understood from the beginning that they are temporary, that they are merely to show to the appropriating bodies, state and local, the type of work that is being advocated and as soon as the appropriating bodies have an opportunity to see the type of service that is proposed, I believe then that as rapidly as possible, the funds of private agencies should be dispensed with.

Dr. Rankin (North Carolina): Mr. Chairman, your very excellent paper has been discussed, indicating the responsive interest on the part of the audience. A point or two have occurred to me. The first is that one way in which to gain this first and most strategic point in development of the local health program, that is, the machinery necessary, is to present the idea of service rather than machinery to the people that you are trying to get an appropriation from.

My second point is this: I appreciate what Professor Fitzgerald and Dr. Sears said in regard to the relation of medicine to the whole-time health officer proposition. We would get along better if we think not so much of the distinction between public medicine and private medicine but about their close and intimate relation.

I think we have talked too much about the difference between private and public practice or private and public medicine, and that difference has had a good deal to do with the indifference, and in some places opposition of the medical profession to public health work.

We have gotten, as public health men, too far away from private medicine, and private medicine has gotten too far away from public health medicine. I have been working along this line in my state. One of the best things that we can do in county and full-time work is putting up local laboratories. Why do we put in a state laboratory? Simply because it performs a function that could not be otherwise performed.

The country doctors, the general practitioners, haven't time to do blood work and urinanalysis, stomach analysis, and so on. If your public health officer does that he is rendering a service that is otherwise not rendered to the patients of those doctors. He is gaining the coöperation of the doctors; he is in a much better position to go before that county health society and ask them to adopt a program. He is approaching their work and he is bringing them in closer touch with his own.

Dr. Kelley (Massachusetts): I also want to reiterate my conviction that we have of recent years perhaps stressed too much the idea of the health department as one thing, and the physician as something else.

I have not looked, as many of you know, with great enthusiasm on the methods that solved this old standing problem in England by practically forcing every practitioner to take on in some respect or other public medical duties, and paying on a fee basis or a fractional time basis, but I certainly do feel very strongly that what Dr. Rankin has said is true, that where we often felt that the medical profession in general has shown a curious and rather inexplicable indifference from our standpoint as to the opportunities for themselves and for the practice of medicine that lie available in promoting public health measures and public health principles, we are practically guilty on our part in not studying out the way in which we could bring the matter before the practicing physicians so they can see where they do fit in.

There is one other point. I have ceased to have any interest in the public full-time health officer, just alone and as such. I believe if we have the unit of population and area and taxable property that justifies full-time health administrative work, it justifies an organization that requires an office force. I think we have perhaps tried to impress upon communities that if we raised three or four thousand dollars to employ a full-time health officer, he could go out and extract from the air all the rest of the resources necessary to organize the smallest unit of a health department.

Personally I have become quite convinced that unless we can see ten thousand dollars in sight somewhere, we had better not talk about a full-time health officer. I do not believe a health officer alone can justify his training or his work unless he has the necessary tools and facilities in the way of organization to work with.

Dr. Hayne (South Carolina): It gives me great pleasure to think that the states that have not had the advantage of a crystallized civilization as South Carolina has, are coming back to our viewpoint. As far back as 1879 the legislature of South Carolina decided that the group who should advise the people of the state in regard to public health were the medical profession of the state; consequently, the entire organized medical profession of the state was constituted as the state board of health.

Therefore, any action we take in that state has to be taken with the full knowledge and consent and coöperation of the medical men of the state. We have gotten away from the whole-time health officer idea. We tried it. We found that though we had had and could select quite a number of good men, yet even though those men were good, they were not good enough to cover all the activities that a health officer of the county or city was called upon to carry out. Consequently, we have gotten down to health organizations as a unit, and we have the whole-time county health officer, the whole-time county health nurse, the whole-time inspectors and the whole-time clerk and a whole-time office for them to work in, as an organization for the county. We have failed to see that any health officer, unless he was a superman, could cover the duties of a county or a state and do justice to himself and to preventive medicine.

Dr. John Dill Robertson (Chicago): I just want to rise to ask, what do you mean by a full-time health officer? Can the full-time health officer take part in any of the clubs and organizations? Shall he do that even if it does take two or three hours to do it? I was health officer of Chicago for seven years. I suppose they called me a full-time health officer. I got ten thousand dollars a year for being health officer of that city.

I had a practice in Chicago, and early in the morning before I went out on my health work I would go out and take out an appendix or in the evening do a herniotomy. Was I a full-time health officer or not? Was I cheating the people of the city of Chicago? I was in my office as early in the morning as any other department head and stayed as late, but never did I quit the practice of surgery during that time. I simply rise to ask the question, What do you mean by a full-time health officer?

Chairman McCullough: In order that we may not encroach upon the remainder of the program, I think this discussion must be brought to a close. I desire to thank those who took part in the discussions for their great interest in the subject.

As to the question, What is a full-time health officer? my idea of a full-time health officer is that he shall devote his time entirely to the work of his office. He cannot adequately do justice to the office, to the work in which he is engaged, if he carries on the profession of surgery or if he is a banker doing business as a banker or a newspaper man doing work on a newspaper, or anything else.

THE ADMINISTRATIVE SYSTEM OF A PUBLIC HEALTH LABORATORY

JAMES R. BEAN, M.D.

Director of Laboratories, Jefferson County Board of Health, Birmingham, Alabama *

THE report of the committee appointed by the American Public Health Association to investigate the practice of municipal health departments, includes a survey of 83 cities of more than 100,000 population. The average number of laboratory examinations made was 86 per 1,000 population, with an average cost for each specimen of 43 cents. The average personnel required for making 100,000 examinations was 26.7 persons, divided as follows:

Bacteriologists	8.3
Chemists	2.3
Other persons (technicians, clerks and the like)	16.1

During the year 1922 a total of 64,096 procedures constituted the year's work in the laboratory of the Jefferson County, Alabama, Board of Health. This was accomplished with a whole time personnel of nine people at an average cost per procedure of 31 cents, and represents in round numbers 210 examinations per 1,000 population. The personnel of nine is divided as follows:

Bacteriologists (including director)	4
Chemist	1
Nurse and technician	1
Clerk	1
Maid	1
Janitor	1

In round numbers, based on the figures of the committee which showed that 26.7 persons was the average for 100,000 procedures, the average personnel required to perform our work during 1922 would have been 17.8 persons.

The term procedure is used on account of the fact that the Board of Health maintains in the Division of Laboratories a vaccination station where the public can procure free immunization against smallpox, typhoid fever, diphtheria and tetanus. As this constitutes a part of the duties of the Division of Laboratories these procedures are necessarily included in the annual report. The facts then are these: the work of this laboratory was carried on with a personnel of 8.8 less than the average at a cost of 12 cents per procedure less than the average. It is also interesting to note that during the past four years our work has increased 733 per cent with the addition of but one in our personnel.

The scope of our work includes the usual variety of examinations undertaken in public health laboratories with the addition of the prophylactic work and it is believed by the writer that the ability of the Division of Laboratories to carry on this work with a personnel so far under the average and at a cost considerably under the average, is due to two things: First, policy; second, and most important, system.

POLICY

Our work has been accomplished without necessitating overtime work on the part of the personnel and without entailing undue mental strain. From an economic standpoint it would appear that if this work can be accomplished satisfactorily with such a significant reduction of personnel and cost as these figures show, that a résumé of the local administration might prove of benefit to other boards of health. Our policy, briefly stated, is to guarantee to the persons using the laboratory a prompt and honest report on the specimens submitted by them. We further guarantee that the results are ob-

* On January 1, 1924, the author became Director of Laboratories, City of Savannah, Georgia.

tained by people of proven ability and reliability. In addition to this, if any complaints are made concerning our work, we proceed on the assumption that the laboratory is wrong, and we welcome any criticism. This greatly strengthens our position and while we frankly admit our mistakes we can by pursuing this policy expect the physicians or other persons using the laboratory to admit their errors.

We do not presume to make diagnoses and we consider, as a part of our duties, the education of the clientele of the laboratory as to the proper use of the facilities afforded. The importance of this statement cannot be overestimated. More misunderstandings result from a misconception of the function of a laboratory than from any other cause. It must be remembered that a public health laboratory is established as an aid to the diagnosis of communicable diseases and to furnish data to the other divisions of the health departments whose activities are guided by the results of laboratory work; in particular, the food and milk division, the communicable disease division and the division of sanitary engineering.

SYSTEM

In establishing a working system for a public health laboratory the various responsibilities to be assumed must be met fairly and squarely. A system of receiving, recording and reporting must be devised which is adequate for all the needs of the work as carried on routinely and yet must be elastic enough to cope with any emergency which might arise. This we feel has been accomplished in our division of laboratories. The system under which we work has, without difficulty, allowed us to assume the burden of a state branch laboratory during this current year (1923). One additional yearly and monthly chart and a separate file for state work solved the problem. Figure 1 shows the immediate increase in our work following the installation of our present policy and system with the subsequent growth including the year 1922. During the first seven months of 1919, 6,120 procedures were carried out. The last five months of 1919 showed a total of 15,215. To demonstrate the almost immediate effect of this system: during the seventh month of the fiscal year of 1919 the total was 1,126 procedures and during the eighth month the total was 1,862, an increase of 736 in less than thirty days.

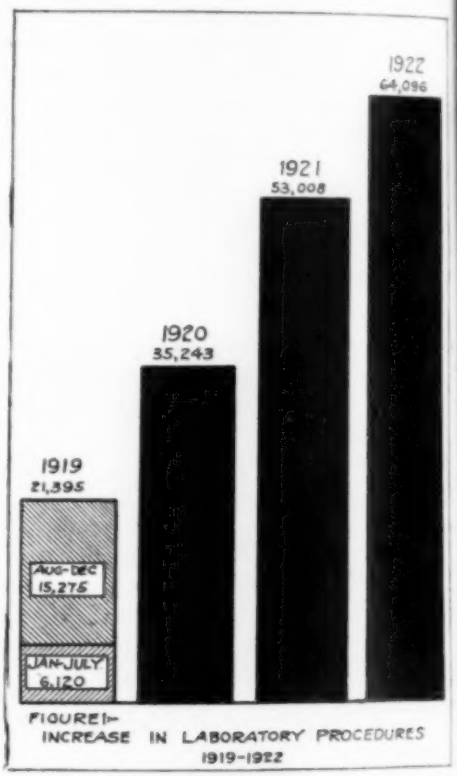

FIGURE 1—INCREASE IN LABORATORY PROCEDURES 1919-1922

OFFICE

In an experience covering ten years in laboratory work I have come to the conclusion that the hub of successful laboratory practice rests in the office. Acting on this conviction we have placed considerable responsibility on the office force. With the exception of specimens of blood for Wassermann reaction and official milk samples submitted by the division of food and dairy inspection for bacteriological and chemical examination

DEPARTMENT OF HEALTH, JEFFERSON COUNTY, ALA.
BUREAU OF LABORATORIES

DAILY REPORT FOR Nov 27th, 1917

			Patient	Address	Physician	Reported By
1647	Sputum	27	Sarah White	City	Snyder	C.F.
1648	Water	27	Spring	Leeds	Mitchell	C.F.
1649	Malaria	27	T.J. Thomas	1054 1st Ave.	Lewis	C.F.W.
1650	Diph	+	Mrs Shelton	Bessemer	Winters	C.F.W.
1651	"	−	Harriett Smith	1218 16th St.	Welch	C.F.W.
1652	"	−	Edna Adkins	401 So 51st	Collins	C.F.W.
1653	Throat	+	Mattie Taylor	Warrior	Smith	C.F.W.
1654	Widal	−	P.T. Jones	2100 Nth 4th	Sellers	C.F.W.
1655	TB	−	John Harris	408 So. 20th	Jones	C.F.W.
Diphtheria		+	41			
		−	103			
		Invest.	3			
Milk						
Chemical		Standard	37			
		Below	3			
	Adulterated		3			
	Preservative		3			
	Miscellaneous		14			
Bacterial		Standard	41			
		Below	17			

James R. Gray, Jr.
Dir. Lab.

FIGURE 2

all specimens are entered in the office. For this purpose we have a "Daily Report" sheet triplicated by carbon paper. These are printed and bound in the sequence of white, blue and pink. The white sheet is sent daily to the city board of health and the blue to the county board of health, the pink is retained as our record. From these reports the activities of the division of infectious diseases are controlled in so far as they relate to the laboratory.

The heading reads: *Serial No., Specimen, Result, Patient, Address, Physician, Reported By.* The serial number begins at 1 on the first of each year. The data blank and the slide, tube, or container of the specimen receives the same serial number under which the specimen is entered on the daily report. The other headings are self-explanatory. The person performing the test is responsible for the correct entry of the result in the column provided for that purpose. The address of the patient is necessary for the division of communicable diseases. The person by whom the specimen is reported must place his or her initials in the "reported by" column. As can readily be seen this report sheet covers a multitude of responsibity. A specimen must not be examined until entered. If a data blank is lost the labroatory still has a complete record. The office force can be held responsible only for reporting the results as obtained by the bacteriologist. As the bacteriologist is responsible for the result as entered on the daily report, any error in reporting cannot be blamed on the office. At the end of the day all unfinished work is marked "C.F." (carried forward) in the report column and a sheet for the following day is prepared. The "C.F." work is then entered and the next serial number written in on the first open line below.

DATA BLANKS

The data blanks must be filled out by the person submitting the specimen. Any error, therefore, in name, address, date, etc., cannot be blamed on the laboratory. This data blank, as before stated, receives the same serial number as the daily report sheet and specimen and accompanies the specimen to the room where the examination is made. The office is responsible

Form D. B. 1

BOARD OF HEALTH, JEFFERSON COUNTY, ALA.
Bureau of Laboratories, Room 326, City Hall
Birmingham, Ala.
MISCELLANEOUS DATA BLANK

SERIAL No. _____ DATE _____ Phone _____
Submitted by Dr. _____ Address _____
Patient _____ Address _____
Color _____ Sex _____ Age _____ Social Stats M. _____ S. _____ W. _____
Specimen of _____
To be examined for _____
Remarks (Symptoms, medication, etc.) _____

BE SURE TO FILL IN DATA IN CLEAR, READABLE HANDWRITING AND STATE PLAINLY AND BRIEFLY WHAT IS DESIRED.

RESULT:

Received _____
Examined by _____
Date _____
Reported by _____
Date _____

FIGURE 3

JEFFERSON COUNTY BOARD OF HEALTH
BUREAU OF LABORATORIES

Date Serologist

Serial No.	Patient's Name	Doctor's Name	Antigens: Kolmer's Quantitative, C. C. Patient's Serum .1	.05	.025	.0125	.00625	Kahn's Test	Cholesterinized	Acetone Insoluble	Remarks

FIGURE 4

Form No. D. B. 2.

BOARD OF HEALTH, JEFFERSON COUNTY, ALA.
Division of Laboratories, Room 326, City Hall
Birmingham, Ala.
DATA BLANK WASSERMANN REACTION

SERIAL NO..... Date..... Phone.....
Submitted by Dr..... Address.....
Patient ..... Address.....
Color..... Sex..... Age..... Social State ..... M..... S..... W.....
Specimen (Blood or Spinal Fluid).....Date of Initial Lesion.....
Secondary ..... Tertiary.....
Symptoms .....
Previous Wassermann (Date and Result).....
Date and Nature of Last Treatment.....
(Physician should fill out to this point)

RESULT:
Kolmer's Antigen.....
Cholesterinized Antigen.....
Acetone Insoluble Antigen.....
Kahn's Antigen.....

RECEIVED.....
Examined by.....
Date.....
Reported by.....
Date.....

FIGURE 5

for the correct entry of the specimen including the date of reception. The results must be recorded on the data blank by the person performing the test. Their initials and the date must also be recorded in their own handwriting and must be in ink or indelible pencil. For purpose of brevity we show in Figure 3 a Miscellaneous Data Blank, as the data blanks for all other specimens conform generally to this.

It might appear that all these entries would embarrass the time of the laboratory force but the ability to produce, at request, a complete record far outweighs any inconvenience. Furthermore, we have had this system in use over four years and it is as much a routine to properly fill out the records as to, for instance, place cedar oil on a stained smear before examining under the oil immersion lens.

For the convenience of the office force we have provided three pigeon holes for the reception of completed data blanks. These are labeled "Finished Not Reported," "To Be Mailed," and "Reported." As they are brought in the office and recorded on the daily report sheet they are dropped in the proper pigeon hole, *i.e.*, "Finished Not Reported" receives all to be telephoned and "To Be Mailed" receives the out of town work. As these are reported they are checked off on the daily sheet by the initials of the person reporting, thus completing the day's work. They are then filed.

DIRECTIONS FOR COLLECTING SPECIMENS

About 5 c.c. of blood or spinal fluid should be collected in a sterile or dry, chemically clean container. If a syringe is used, it may be rinsed with sterile physiological salt solution (two teaspoonsful of salt to a quart or liter of water). Do not use water to rinse syringe or tube.

The container should be allowed to stand at room temperature for about an hour and then kept in an ice box until sent to the laboratory. Sterile outfits will be furnished physicians upon request.

Wassermann tests are done Monday, Wednesday and Friday. Specimens must be received at the laboratory not later than 9 A. M. on these days.

FACTORS LEADING TO FALSE RESULTS

1. In the first stages of syphilis the highest percentage of positive reactions are obtained about the 7th or 8th week after infection or about four weeks after the primary sore appears.
2. In treated cases all medication should be suspended for at least two weeks before the sample is sent in for examination.
3. A false negative reaction may persist from one to three days after alcoholic intoxication, the duration of this condition depending upon the amount of alcohol taken.
4. A false positive reaction is often secured if the blood is collected during or immediately after chloroform or ether anesthesia.
5. A high temperature may cause a false positive reaction.
6. Blood collected just after a full meal or while a patient is suffering from insuffic[illegible]ay yield a false positive reaction.

FIGURE 6

FILES

Our files are arranged by specimens, *i.e.*, Wassermann Tests, Widal Reactions,

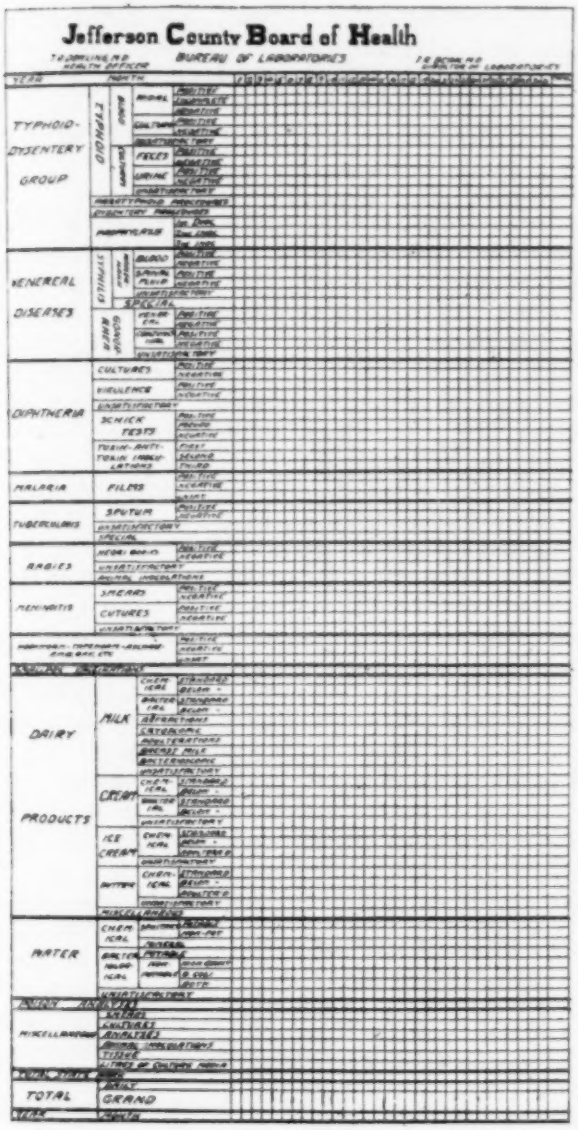

FIGURE 7

etc. The completed data blanks are filed under the patient's name. We believe that if the condition of a patient warrants a laboratory examination it becomes of enough importance to the physician to supply us with the necessary data and also for him to remember the name of the patient. Furthermore, serving as we do, approximately 400 physicians, to file under the physician's name would necessitate too bulky a file. We have two files, current and annual. The current files contain work for the current year and the annual file includes all our back work. With this arrangement we can, within a very short time, produce a report on any work done by us since May, 1919.

WASSERMANN REACTION

Our Wassermann work is handled in exactly the same manner with the exception that the serologist is responsible for entering the data on a Wassermann daily report sheet which is similar to the daily report sheet in the outside office. Figure 4 shows this sheet.

When the Wassermann tests are finished the serologist brings the completed data blanks to the office. The reports to be telephoned are then placed under the physician's name in a small desk file, the ones to be written are placed in the "To Be Written" pigeon hole. We have found that by holding the telephonic reports in the small file for 24 hours after they are reported that considerable time is saved by our office in looking them up in the general files on account of the inability of many of the physicians' maids to understand the report with a subsequent call by the physician himself. To complete our "Daily Report" in so far as the Wassermann tests go we enter only the total number of positives and negatives on the final sheet for that day. Figures 5 and 6 show the obverse and reverse of our Wassermann Data Blank.

DAIRY PRODUCTS

The milk work is handled as the Wassermann work, the chemist being responsible for the daily entry sheet (not shown). Only official samples are handled this way. Samples from private individuals are handled through the front office. The laboratory is entirely ignorant of the source of milk samples as they are submitted by the Division of Food and Dairy Inspection by number only.

The milk tag is in three parts. The end portion is removed by the milk inspector for the Division of Food and Dairy Inspection. The middle part represents the data blank and when completed is sent to our office where it is transcribed on a "Daily Record of Analysis" and sent with this record to the Division of Food and Dairy Inspection. The numbered stub remains on the sample.

This gives in brief manner the routine handling of our work. There remains to be considered the monthly and annual reports.

MONTHLY AND ANNUAL CHARTS

Figure 7 shows the chart used to compile our monthly reports. One quite similar is used for the annual report. These charts measure 13½ by 27 inches and are placed on a bulletin board in the office. They show also during the current month the daily work accomplished and during the year the total for each month and for the year to the beginning of the current month.

These charts have proven to be of almost inestimable value to us. They serve as a starting point to demonstrate our work to visitors and they serve as a statistical chart for the use of the health officer and other divisions of the board of health. In addition they save time, as it can readily be seen that to accurately compile a statistical report from the daily sheets for the entire month would consume a prohibitive amount of time with only one clerk in the office. Before nine o'clock each morning the "Daily Report" is balanced and transferred to the monthly chart. At the end of each month this is balanced and gives us our statistical monthly report in less than an hour. At the end of December the annual chart is automatically balanced and ready for use as the statistical part of our annual report.

SUMMARY

1. A system is outlined which has proved of practical value during four years actual work.

2. Under this system the responsibility for work is definitely fixed by record on the individuals concerned.

3. It is shown that a laboratory of considerable size can be administered at a cost and with a personnel much less than the average.

THE ORGANIZATION AND BUDGET OF A HEALTH DEPARTMENT IN A CITY OF 20,000 POPULATION

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Read at a Round Table Discussion before the Public Health Administration Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 10, 1923.

DURING the past few years questions have been constantly raised as to the proper health equipment for small communities. Dr. Levy's statement in 1918[1] that "we have to-day in this country a far more satisfactory mass of information on public health administration for states and for cities of, say, over 25,000 inhabitants, on the one hand, and for rural sections, on the other hand, than we have for the intermediate communities," is still pertinent.

It is believed that a study of the health services of small cities executed on somewhat the same basis as the study of cities of 100,000 population and over, made by the Committee on Municipal Health Department Practice of the American Public Health Association,[2] would result in material good to the whole country.

Such a study, on a small scale, was carried on in Connecticut from December, 1922, to June, 1923, under the direction of the Department of Public Health of the Yale School of Medicine by Dr. F. M. Munson, a graduate student, and the writer, and included 21 towns of from 10,000 to 30,000 population. On the basis of this survey, supplemented by a study of the health services in five outside communities of corresponding size and with full-time health officers,[3] together with the writer's own experience in administrative work in cities of this class, there has been prepared a preliminary outline for an ideal yet practical health department for a city of 20,000 population. Obviously, many modifications will be necessary for individual cases, for every community is in a way a "law unto itself." Furthermore, our present data are considered insufficient to justify the formulation of more than a tentative plan. An attempt has been made to include here only those features which have proven workable somewhere else. As in the report of the Committee on Municipal Health Department Practice it seems essential to include all the basic elements of the modern health campaign, although many of these duties are actually performed by voluntary or other official organizations. Wherever these services are provided in a satisfactory manner by some other agency than the health department, its organization and budget may be reduced accordingly.

1. Municipal Health Administration, Levy, et als. Jour. A. M. A., Vol. 71, No. 18, 1918, pp. 1457-70.
2. Report of Committee on Municipal Health Department Practice, Public Health Bulletin No. 136, July, 1923.
3. Framingham, Mass., Glens Falls, N. Y., Greenville, S. C., Hygienic Institute, Ill., Montclair, N. J. It is with pleasure that we acknowledge the cooperation of the health officials of these towns in supplying us with detailed information concerning the health services of their respective towns.

ORGANIZATION

As in the case of the larger cities, it seems first of all desirable that the health officer shall have the support of a board of health * which should advise in regard to the general policies of the department, approve the budget prepared by the health officer and when legally permissible promulgate the Sanitary Code. The powers of the board should be chiefly supervisory and legislative and include direct administrative authority only in those cases where the personnel and local conditions make such arrangement necessary.

The general administration of the de-

* A board consisting of a physician, a lawyer, an engineer, a public spirited woman and a business man is suggested.

partment should be conducted by the health officer with the assistance of an able clerk. In addition to purely administrative procedures, it is believed that in a community of this size the duties of public health education and the registration of vital statistics rightfully belong to the health officer, and if wisely discharged may be helpful forces in the conduct of his work.

The clerk should be a tactful person and capable of handling the purely routine office business of the department, leaving the health officer free to study his manifold problems, establish and maintain contacts in the community, and supervise all the official health work.

Success in public health work is influenced in no small degree by the type of publicity and education carried on by the department. The department depends for its support upon the public which it serves, and, therefore, must keep the people informed of its activities and of the developments in the public health field. On account of its intimate connection with department policies, this work should be under the direct supervision of the health officer and form a part of the bureau of administration and records.

The vital statistics in a large percentage of the cities of this class are in the hands of a special registrar, who is usually the town clerk. This is true in practically all of the New England communities. Under such a plan the work is inclined to be of a perfunctory character and health department interest in such records is often resented by clerks. Modern practice, however, calls for the care of all records of vital statistics by the health departments. To quote from the Twenty-sixth Report of the Montclair Board of Health for 1920, "The value of complete and accurate records of births, deaths, marriages and even cases of communicable diseases is to-day being realized as never before by the public at large. Scarcely a day passes that someone does not make a request to this office for a certified copy of his or her birth certifiate." Such records are constantly used by the active health officer and if scientifically applied may serve a most important purpose in the evaluation of health department activities. It is desirable that the health officer be the registrar of vital statistics and his clerk be sufficiently conversant with the general procedure to act in his absence.

It may readily be seen that a health officer must be a highly skilled person to carry out effectively these different lines of endeavor. He should receive a salary of at least $3,500, rising to $5,000 with continued and successful service. It is realized that only a few cities of this size now pay their health officers even this minimum salary,[4] although the salaries of three of the five communities which have been selected as norms fall within this suggested range. As people come to realize more fully the importance of this position and as more highly trained men, capable of leadership, become available for full-time health positions, salaries will increase proportionally. In outlining a plan for an adequate health department an average salary of $4,250 has been suggested for the health officer and $1,500 for the clerk-stenographer. Two thousand dollars has been allowed for maintenance, which includes educational work, publication of annual report and office expenses, thus giving a per capita allowance of 39 cents for these administrative services. No provision has been made for rent, as the department is usually housed in a municipal building.[5]

Communicable disease control should be in charge of a man of pleasing personality who is conversant with modern methods of disease control. Although in communities of smaller size the health officer could well handle this work, it is felt that cities of 20,000 to 50,000

4. The yearly amount paid the part-time officers in eighteen towns of the Connecticut study ranged from $310 to $2,500 with a median of $900.

5. A central health building, adequate for all department bureaus and special clinic rooms, has many practical and educational advantages.

population could profitably use an epidemiologist on half time, the rest of his time perhaps being spent in school work. Efficient laboratory service will stimulate friendly relations between physicians and the health department as well as affording early reports on examinations and a means for investigation of individual community problems. The bacteriologist must be a person well trained in modern methods of disease diagnosis, milk and water analysis. For communicable disease control and laboratory work a total of 44 cents per capita has been set aside, $1,750 for the half-time salary of the epidemiologist with $3,000 for maintenance and communicable disease hospital care, $2,000 for the bacteriologist, with $500 for laboratory expenses, and $1,600 for special medical and clinic service for venereal disease and tuberculosis.

Activities in infant hygiene have already achieved remarkable results but in many localities should be extended along the lines recommended by the Committee on Municipal Health Department Practice previously referred to. Special medical service is essential for the various child health conferences, and the physicians who devote their time to this work should be paid for their services. The school physician may well be a full-time employee of the health department and spend half of his time in some other activity, as in disease control. In several towns of Connecticut the health officer also serves as school physician and the arrangement seems worthy of consideration by those towns not large enough to require an extra person. For the medical and dental suprvision of infants and school children, 29 cents per capita has been set aside in the budget, distributed as follows: $4,350 for salaries of school physician (half-time), dentist (part-time), dental hygienist, and for special medical service for prenatal, well baby and preschool conferences, with $1,500 for maintenance.

The importance of the nurses' work in the whole public health campaign is realized more fully each year, especially in its relation to education in matters of personal hygiene. It is felt that in a city of this size, definite economy and efficiency of service will result from a generalized plan, by which the nurses will be districted and execute the various types of nursing in their districts under the direction of a supervising nurse who is herself responsible to the health officer. This type of nursing has already proven its value in communities of about the size we are studying, including among others Columbia, S. C., the health center district of New Haven, and several of the surveyed towns. Certain of the records will, of course, be kept by the nurses themselves, but purely routine matters should be left to the department stenographer and thereby save the nurses' time.

For fulfilling the necessary functions in this model city, it is suggested that nursing service equivalent to a staff of the following size is desirable:

For communicable disease work (including tuberculosis and venereal diseases)	1½ nurses
For maternity and infant hygiene work (including preschool)	4 nurses
For school health work	2½ nurses
Total (including supervising nurse)	9 nurses

Although the number of nurses needed for the performance of various types of service has been detailed under these different headings, it is believed that for economy of the nurse's time and for the benefit of closer personal contact with families, all of these nurses should be organized on a generalized basis. According to this plan one nurse does all the public health nursing for a compact area and becomes intimately acquainted with the individuals of her district.

The staff nurses will do all kinds of public health nursing, including a certain amount of emergency bedside nursing as well as the more purely educational activities in connection with home follow-up

and clinic services. Under a system of rotation, with extra pay for overtime, these nurses might also render important service in outpatient obstetrical work, as do the nurses in Middletown, Conn. It also seems fair to assume that about 20 per cent of the gross cost can be collected under a proper administrative plan from sick patients and insured groups. The size of the budget would, of course, depend upon the particular community and upon the salary scales as well as living conditions of the different communities. This plan thus allows for 63 cents per capita when 20 per cent has been deducted from the following: $2,500 for director, $11,200 for 8 staff nurses, $1,000 for stenographer, and $1,000 for maintenance.

In a city of this size it is considered desirable that the inspection work be carried on under the direct supervision of the health officer with the full-time assistance of a capable health inspector. In connection with the food and milk supervision, veterinary assistance may be necessary, in which case satisfactory arrangements may be made for this specialized service on a part-time basis. It is believed that by the aid of a motorcycle side car, one qualified inspector could well handle the routine inspection work which should reasonably be done by the health department, while the health officer himself would attend to unusual problems. Only 15 cents per capita has been set aside for inspection service, $2,400 for salary and $700 for maintenance, which includes upkeep of the motorcycle. Added to the previous amounts suggested, this makes a total budget of $1.90 per capita.

BUDGET

Three essentials for successful health administration are *expert officials, adequate funds,* and *favorable public opinion.* In nearly every community of our survey, expenditures for health services by agencies outside the health department, such as the department of education, exceed those by the health department. In the five selected communities the difference between the amounts spent through the health department alone and the health expenditures by all agencies is not usually as great as is the case in the surveyed towns. The general situation is shown in the accompanying table, in which it was impossible to separate accurately the expenditures for administration, communicable disease, and medical and dental supervision. In case of the 21 towns, a fraction of the inspection item is included under administration; but the amount is not enough to be of consequence, for in such cases little inspection work is done.[6]

It will be noted that an ideal plan calls for an expenditure for all health agencies in the community of $1.90 per capita. This estimate is based upon a study of the requirements for the best practice in handling different functions in various localities included in this study and elsewhere. It is recognized that up to the present time few budgets as a whole have approached this magnitude, although special features of this plan have usually been found in different places. In the New Haven Health Center,[7] April 1, 1920, to June 30, 1923, where a well rounded program was attempted, the per capita expenditure was $1.52,[8] exclusive of the cost of a contagious disease hospital laboratory, venereal disease, tuberculosis, and food inspection. If the allowance recommended by the Committee on Municipal Health Department Practice for these four services exclusive of contagious disease hospital is added, namely, 42 cents per capita, the total expenditure would be $1.94.

To secure adequate funds for his work is an individual task of the health officer, and the first essential is a consideration of psychology and local conditions. It is obviously important to guard the money

6. These figures are subject to minor changes when additional information is obtained.

7. The 1920 figures of the Bureau of the Census for the three wards comprising this district showed a population of 26,840.

8. Platt, Philip S., M.A., C.P.H., Report on New Haven Health Center Demonstration, 1923.

PER CAPITA EXPENDITURES FOR HEALTH SERVICES IN 21 TOWNS OF 10,000 TO 30,000 POPULATION AND IN 5 SELECTED TOWNS, AS COMPARED WITH A TENTATIVE IDEAL PLAN.

Function	21 Towns		Selected Towns		Tentative Ideal
	Health Dept.	All Agencies[1]	Health Dept.	All Agencies[2]	
Administration,[3] Communicable Dis., Medical Supervision	$0.12	$0.19	$0.52	$0.84	$1.12[4]
Nursing	0.02	0.27	0.16	0.21	0.63
Inspection	0.05	0.06	0.17	0.17	0.15
Grand Total	$0.19	$0.52	$0.85	$1.22	$1.90

[1] Exclusive of state service, as for laboratory examinations.
[2] Four communities only.
[3] Includes Administration, Public Health Education and Vital Statistics (Ideal $0.39); Communicable Disease, Laboratory and Hospital Service (Ideal $0.44); and Medical and Dental Supervision (Ideal $0.29).
[4] If mosquito control or scavenger work is done, $2,500 to $5,000 must be added to the total budget.

and give value received, for the health officer is a trustee for a large number of people. A plan should be made as to how the money is to be spent, dividing the expected amount into expenditures (a) for existing work, and (b) for new work, and arranging the latter in order of importance. The figures for existing work should be placed at an irreducible minimum, while it is important to mention new work to start people thinking along progressive lines. It is helpful in this connection to distribute the amounts by functions, as in the above budget arrangement, drawing comparisons with other cities of similar size, relating to city wealth, and showing what has been done in the past as well as what is proposed for the future.

To be sure, money is often voted on personal considerations rather than on the merits of the case. Dr. Allen Freeman, in an address some time ago pointed out that appropriating bodies vote money to people whom they like, those who present a clear statement, and those who can give returns. The health officer must know the appropriating body and be prepared to support his budget, as a master of his facts, pointing out that on the legislative body rests the responsibility of the health of the community. A health officer whose budget now amounts to only 50 cents per capita or less cannot hope to secure such a striking increase as the proposed plan suggests within a period of one year, or possibly even for several years. It is also recognized that the needs of one community differ from those of another, although in general the problems are somewhat similar. It is considered helpful, however, to draw up a full program, based on modern experience, and gradually endeavor to secure specific additions as fast as the public and appropriating bodies become educated to existing needs.

It should be clearly understood that this plan is merely a starting point, for it is not believed that we have sufficient information to-day to formulate an ideal budget for communities of this size. Criticism of this outline will be made by those who consider it too idealistic. Still others may disagree as to details, although convinced that a modern program calls for this increased budget. No one more readily than the writer will sanction a lesser budget should it be found adequate. The health officers of the small communities have made important contributions to public health administration and know better than anyone else the magnitude of their problems. With their interest and support the success of future studies is assured.[9] In Connecticut we

9. Since this paper was presented in Boston, one of the health officers of a small city who attended the meetings has suggested a plan for sectional conferences by health officers in different parts of the United States for a free discussion of their individual problems with a view to ascertaining just what is needed in communities of this size.

have only made a small beginning to ascertain the facts of the situation, and our findings indicate the urgent need for more extensive data, covering all phases of the work and for different sections of the country. It is believed that concerted efforts of all public health workers, particularly the health administrators, in seeking more knowledge regarding this problem, will strengthen the program of these small communities and add new landmarks to the public health campaign.

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ISOLATION BEFORE DIAGNOSIS

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Read at a Round Table Discussion before the Public Health Administration Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 10, 1923.

GREAT strides have been made in the field of preventive medicine. We find the practical eradication, or at least a tremendous minimization of such ailments as yellow fever, malaria, typhoid, smallpox, cholera, typhus, and the plague. Even tuberculosis, with its appalling toll in human life, is yielding, after having gone unchecked through the centuries.

However, the unsolved problems, some immediate and seemingly simple, are many and perplexing. Respiratory ailments in general, are everywhere on the increase, both in the number of persons afflicted and in the fatalities. Diphtheria, scarlet fever, measles, whooping cough, and the other common communicable diseases of childhood show few signs of abatement. The *Statistical Bulletin* of the Metropolitan Life Insurance Company, in commenting upon the higher mortality in 1920 over 1919, due to diphtheria, measles, scarlet fever, and whooping cough, declares that "the downward tendency has been so trifling as to raise the question whether the present line of attack on these conditions is producing results commensurate with its cost." "Do we need a radical change," it adds, "in the public health procedure against these enemies of childhood?"

It is very evident to every observer that the waves of communicable disease, as they come and go, are not indicative of control but of the lack of it.

When the schools open in the fall, the morbidity curves, showing the fluctuations of the common communicable diseases of childhood, take a turn upwards. This is always expected and it always happens. Medical inspection in schools was inaugurated years ago, expressly to combat this situation. While the accomplishments of medical inspection in many ways have been notable, yet in so far as its original objective is concerned, Rosenau is doubtless correct in his observation when he says in *Preventive Medicine and Hygiene* that "it at once must be admitted that it has been a failure . . . for it has had very slight influence upon the prevalence of measles, scarlet fever, diphtheria, whooping cough, mumps, etc." Childhood, it would seem, is unprotected quite as much to-day against the attacks of these insidious enemies as it was a decade or two ago.

Wherein lies the remedy? Does the remedy lie in more vigorous enforcement of quarantine regulations, more prophylactic inoculation, the building up of a body with greater physical resistance, more general sanitation, more and closer medical inspection in the schools? While no one would urge that any of these health

activities be curtailed, much less abandoned, yet there must be substantial agreement that the results of the prevailing policies and methods, even in faultless administration, fall far short of the goal.

It is my opinion that the *Statistical Bulletin* already quoted strikes at the crux of the situation when it raises the question, "Are we expending enough effort in breaking the channels of communication of these infections, and are we doing it in full knowledge of the natural history of these diseases?" To permit a pupil to remain in school with symptoms of a fresh cold, or watery eyes, excluding it only after it breaks out with the measles; to permit a child with a cough to mingle with others until it "whoops"; to release from quarantine earlier than six or seven weeks after an attack of scarlet fever; to give a child its freedom during the third week following exposure to chickenpox or mumps; to fail to make thoroughgoing search for carriers when confronted with diphtheria; to rely upon physical resistance as a protection against infections; or to inspect the plumbing, garbage cans and refuse piles in seeking sources of contagion, is to admit ignorance of the natural history of these infections. Frankly, are we predicating our efforts upon a full knowledge of the natural history of these diseases? Are we carefully scrutinizing the facts and then basing our procedure upon them, unafraid to modify, to amend, or even to reverse our policies when their inadequacy becomes apparent?

Permit me to refer to a personal experience. It is an experience that is not uncommon, especially to lay health officers. Conforming as best we knew how to the requirements of the law with reference to placarding and the enforcement of quarantine regulations, the board of health, of which I was a member, failed utterly in preventing the spread of preventable diseases. Why were they not prevented? There were many contributing causes. Failure to report was one. It was felt all would be well if this was remedied, when a more puzzling situation confronted us. From one to six weeks would usually elapse from the incidence of the disease to the time when a physician would be willing to make a definite diagnosis of whooping cough. In the meantime, the child afflicted would freely intermingle with others and attend school. From several days to several weeks would pass before sufficiently definite symptoms would warrant a diagnosis of scarlet fever. One day a malady would be called a sore throat; the next day, tonsilitis, and diphtheria, the next; and, until the final diagnosis of diphtheria, there could be no official quarantine. "Just a cold" would become measles a few days later.

The board of health came to the conclusion, finally, that mere compliance with the law, reporting and placarding promptly, while conducive of much good, were wholly inadequate measures to control communicable diseases. It did not *prevent* our children from becoming afflicted with *preventable* diseases.

At the beginning of the next year, the board of health announced its intention of inaugurating a new policy. It was proposed thereafter *to isolate first and diagnose afterwards*, and as a concomitant measure, *to placard on suspicion*. The results were gratifying beyond all hope or expectation. It was agreed upon that no child henceforth was to be permitted to remain in the schools if it had a cold, a cough, a sore throat, or was otherwise indisposed, no matter how mild the symptoms. Consideration for the comfort of the child itself should prompt such a course, and when one takes into account the potential mischief in its presence, failure to exclude strikes us as a reckless disregard for the rights of others. An excluded child was to be readmitted only after it had been definitely determined by competent medical authority that its illness was not communicable. The burden of proof was shifted. The public inter-

ests were to be paramount, and those of the individual secondary. It was pointed out to the citizens that this policy was made necessary by reason of the fact that the medical profession had not yet advanced far enough to enable the most skilled within its ranks to differentiate between whooping cough, measles, diphtheria, scarlet fever, and other so-called children's diseases from an ordinary cough, sore throat, or a common cold when the first symptoms appeared, and that at the outset the diseases in question are already exceedingly contagious. "Isolation first and diagnosis afterwards" was to be the invariable rule.

The second point in the new program consisted in placarding houses on suspicion. When clinical symptoms were inconclusive, but circumstances warranted a suspicion, homes were placarded "whooping cough suspected," "influenza suspected," "scarlet fever suspected," as the case might be, and the same quarantine regulations were maintained as though there was no question as to the diagnosis. Though quite a number of homes have been placarded on suspicion, the number of erroneous guesses has been negligible. The virtue of this expedient lies in the fact that erroneous guesses never result in injury to anyone, while a "correct" suspicion is often the means of preventing much needless suffering.

There should be isolation from the very moment first symptoms appear. The possibility of contagion should be taken into account from the very outset, and the afflicted should be kept apart from others within and without the household from the very beginning. The channels of communication should be broken long before placarding upon definite diagnosis is possible.

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FURTHER OBSERVATIONS ON THE SCHICK AND TOXIN-ANTITOXIN IMMUNIZATION AGAINST DIPHTHERIA IN THE CITY OF AUBURN

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District Health Officer, Syracuse, N. Y.

Read before the Laboratory Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 10, 1923.

AS WAS stated by the author in a discussion of Dr. Park's paper before this Association at Cleveland last year, the city of Auburn was selected for a demonstration of the Schick test and toxin-antitoxin immunization against diphtheria on account of conditions which seemed to us most favorable for such a demonstration, namely, its size (36,000), its varied industries, and living conditions, the coöperative spirit of its physicians and citizens generally, the varied nationalities represented by its population, and finally, the increasing prevalence of diphtheria for the previous three years.

Most of the work was done in February and March, 1922; and has been supplemented by further testing and immunizing during the autumn of 1922 and the spring of 1923.

We have now Schick tested 5,067 children, nearly 72 per cent of the enrolled school population, 3,083, or 63 per cent, showing a positive test, 82 per cent of whom were given toxin-antitoxin.

The school population of Auburn represents 31 nationalities and living conditions, while not representing the extremes found in larger cities, are exceedingly variable. We find but little variation in the results of the Schick test among the

English speaking nationalities, namely, English, Scotch, Irish, and Yankees; the living conditions of which do not vary greatly. There was, however, far greater natural immunity found among the foreign speaking nationalities, as for instance, in St. Hyacinth's school, which is 100 per cent Polish, few of whom speak English, only 26 per cent showed a positive reaction, while in the Fulton school representing only 9 per cent foreign population, 85 per cent showed positive tests. In Madison school, in which 92 per cent of the children are Italian, only 36 per cent showed positive tests. This variation among different nationalities is quite constant through the entire schools. The variation is generally attributed to the living and housing conditions among these people, which gives rise to greater exposure to diphtheria with immunity at the expense of sickness and deaths; and it is true that the largest number of cases and deaths during the past few years have occurred in the sections of the city inhabited principally by these nationalities. From the fact that the distribution of cases has been entirely changed since the immunization, we would be led to believe that the response to artificial immunization is fully as great as in the English speaking nationalities and, in fact, re-Schicking among the Polish children six months after immunization showed the largest response, namely, 90 per cent had become negative. The record of diphtheria in Auburn for the past year shows not only a great reduction in the number of cases among school children but a more even distribution of the cases throughout the city. On re-Schicking 1,594 of the original positive cases six months after the administration of toxin-antitoxin, we found that about 60 per cent showed an absolutely negative test and about 20 per cent more showed only slightly positive tests. On re-Schicking many of these positive children again at the end of another six months, without a second immunization, about 55 per cent of them had become negative. This would indicate that the best period of time that should elapse following the toxin-antitoxin before re-Schicking would be approximately one year. In Schick testing 113 preschool children six months after having given them the three doses of toxin-antitoxin without previously giving them the Schick test 94 per cent showed a perfectly negative test. While this is too small a number from which to draw conclusions, it would tend to show that young children give a better response to the toxin-antitoxin than older children.

In comparing the results of this work as represented by the number of cases and deaths from diphtheria for the 18 months since the completion of our first demonstration (March 17, 1922) at which time 58 per cent of the school children had submitted to the demonstration, we find that there have been reported among the children of school ages in the remaining 42 per cent, 83 cases and 14 deaths, while among the school children tested and immunized there have been reported but 7 cases, most of which on investigation proved to be Vincent's angina in diphtheria carriers. There was one death, a boy twelve years old who received the three doses of toxin-antitoxin in March, 1922, was still positive on re-Schicking six months later, and died in May, 1923. This case was a complicated one and it is doubtful if his death was due to diphtheria, as 30,000 units of antitoxin given intravenously the day following the onset had no effect on the disease, the boy dying five days later of what would appear to be a general septic condition rather than a pure toxemia. Even if these cases were all admitted as diphtheritic the comparison is most striking.

There is one feature of this work that has not been sufficiently emphasized and that is the financial loss to school funds as a result of epidemics among children. We were unable to secure data regarding

the loss of school days attendance over a period of several years, but the school nurse of Auburn secured very valuable data for the past two years—the school year just previous to our demonstration and the year following—computing the school days lost due to exclusion from school on account of diphtheria cases, contacts and carriers in all the public schools except the high schools, give results which are most startling and serve as a convincing argument to present to public officials. The number of school days lost to pupils from the above causes alone for the school year September, 1921, to June, 1922, were 22,438, representing 126.6 school years. At the per capita cost per pupil in the city of Auburn, this would amount to a financial loss to the school funds of $10,860.00. Computing the days attendance lost from the same causes for the school year following our demonstration (September, 1922, to June, 1923) the total number of days was 1,189, representing 6.5 school years, or a financial loss of $565.47.

Similar results are being borne out in smaller communities, namely, Seneca Falls and East Syracuse, each with a population of about 6,000. In Seneca Falls we had only a single case of diphtheria during the last school year, this work having been done the previous school year. The average number of cases for the previous five years was 22. In East Syracuse we made a demonstration in February and March, 1923. For the 18 months just previous to this time 144 cases of diphtheria had been reported with eight deaths. For the past five months not a single case of diphtheria has occurred in that village.

In Syracuse, in which we Schick tested 7,358 school children during last January and February and immunized 81 per cent of the positive cases, the cases and deaths have decreased more than 50 per cent this year. While we cannot claim that all of this result is due to the toxin-antitoxin immunization, the contrast is so striking as to lead us to believe that it is the principal factor.

From an experience among the cities and villages of central New York covering less than two years and including over 15,000 school and preschool children in which not a single serious result has occurred, I would make the following conclusions:

1. Toxin-antitoxin immunization against diphtheria offers the safest and best means at our disposal for the control of diphtheria.

2. The purpose of these demonstrations among school children is to bring forcibly before physicians, parents, and public officials the great value of this procedure.

3. The most favorable age is early childhood, at or soon after the completion of the first year, and should be done by the family physician, Schicking six months later to determine the results.

4. Extreme accuracy in making the test and great care in reading the results should be observed in order to avoid mistakes. Each dose of Schick solution should be accurately measured with the syringe and all doubtful readings should be placed in the positive column.

DISCUSSION

Dr. John A. Ceconi, Boston.—The similarity of conclusions that can be drawn between a city of 36,000, namely, Auburn, and one, Boston, of approximately 800,000, is very striking. The Boston results showed about 50 per cent positives; those of Auburn 63 per cent. Again we find ourselves in practical accord with the results of Schicking among English speaking peoples. We are also pleased to be able to agree with the doctor's findings as to natural immunity among such foreign nationalities as the Italians and the Poles, an immunity ascribed by some observers to the living and housing conditions among these people; an immunity which is fairly constant, but the exceptions to which furnish the basis for serious thought.

The deductions that could be drawn from our work among the children of different races seem very pointed indeed. In the north end of Boston, perhaps the most densely populated area in the city, an examination of two schools which contained a pupil population of 621 (100 per cent Italian) showed an immunity of 80 per cent. Two hundred yards away in the dense center of population an examination of a school consisting of Polish, Irish, and only 15 per cent Italian, showed 85 per cent of the Italian children to be immune, yet the whole school averaged only 58 per cent immunity. This would seem to argue this difference of immunity against holding too tenaciously to the theory that density of population *per se* is the only large factor in producing natural immunity. Let me further illustrate: In the suburban districts such as Hyde Park and Readville, many miles removed from the center of the city, an examination of a school where 20 per cent of the school population was Italian, we found the average of immunity among the Italians to be as high as 70 per cent, yet the average school immunity was only 45 per cent.

If these findings are not conclusive, they are at least highly suggestive that a very large factor in the production of natural immunity is racial. But this further fact stood out markedly in our work—that those of the Italians whose *susceptibility* was demonstrable —proved to be *susceptible* to such a high degree that it was unusual to find them immunized after the three usual doses of toxin-antitoxin in many cases, and on this point we find ourselves unable to agree entirely with the doctor in waiting longer than six months as a routine procedure in all cases for re-Schicking. In fact, our experience with the Italian population would seem to argue against the desirability of waiting; *e.g.*, a child susceptible in January and again demonstrably susceptible in June, in our opinion should be reinjected at the earliest possible moment.

The variation in the results in re-Schicking, namely, 60 per cent immunity in Auburn and 87 per cent in Boston, would seem to call for some comment. The variation in the potency in the toxin used might affect results. It is quite possible that such variables affected our early work in Boston. Again, the personal factor in readings may explain the discrepancy in part. One might call a "pseudo," a "positive combined" or *vice versa*. The presence or absence of a control might affect the readings and consequently the results.

From December 1, 1922, to date, we have investigated over 2,400 children ill with diphtheria. Eight of these cases investigated were originally positive Schick reactors and received the usual full doses of toxin-antitoxin. Six of these eight on re-Schicking were still positive reactors and refused reinjections of toxin-antitoxin; the other two cases were negative reactors; three of the six cases were straight clinical diphtheria; the other three were bacteriological cases with no clinical symptoms. The other two who were negative on re-Schicking were straight Vincent's angina with nonvirulent organisms.

Out of 40,000 Schick tested children, only three cases of clinical diphtheria occurred and these three cases were proved to be positive Schick reactors on re-Schicking. This demonstrates conclusively in our minds that these specific cases belong to the small group that resist active immunization with toxin-antitoxin after the usual three injections and we believe that this percentage corresponds to the usual number that require more than one series of injections to establish immunity.

Coming down now to Dr. Sears' conclusions: we agree absolutely with the first and second and are friendly and constructively disposed to take issue with the third. That "the most favorable age is early childhood, at or soon after the completion of the first year," *is incontestable;* and that toxin-antitoxin may be given by the family physician, presents to our mind *nothing objectionable, but Schicking or re-Schicking by the general practitioner or others not skilled in this work if at all desirable, is debatable.* The practical impossibility of securing "extreme accuracy in making the test and great care in reading the results" has been made very manifest to us in our Schick work in Boston. We have been greatly impressed by the number of very able individual physicians, and even groups of able physicians who were willing to admit their inability to make accurate readings, or their wishfulness to learn. Now, since the very foundation on which the value of this whole procedure must rest (if it is not to be discredited) is accuracy, we feel and feel deeply the necessity of restricting the Schick test *per se* to those only who have acquired a mastery of the technique and readings alike.

THE COURSE OF MORTALITY FROM PUERPERAL SEPTICEMIA FOR CERTAIN STATES OF THE UNITED STATES, 1900-1920

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INTEREST in the prevention of maternal deaths has been increasing during the last few years due in no small measure to the educational efforts of the Children's Bureau of the U. S. Department of Labor. With a keener appreciation of the problems there has come on the part of those interested in the welfare and health of society a determination to reduce and, if possible, eliminate the causes. This widely felt desire to control maternal mortality resulted in the passage of the Sheppard-Towner Bill, by which the problem receives government recognition and according to which states may under certain conditions receive federal financial aid for the carrying out of a program considered to be effective in dealing with the situation. While there may be some question as to the legality and practical efficiency of the federal act just mentioned, the movement itself—to reduce maternal deaths—is more than justified by the high death rates from causes associated with childbirth in this country as compared for example with those recorded in England (1). The urgency of the problem will most certainly call forth preventive work of a more intensive character than any yet undertaken.

For the success of a health movement such as the one just indicated there is needed a careful evaluation of the problem to be attacked and a solid mass of facts upon which to base a plan of campaign. In the light of this requirement a review of the past course of mortality from puerperal septicemia may not be without interest and value. It was selected for this study because of its importance among the causes of maternal mortality. According to the published figures of the Census Bureau (2) for 1920 for the United States registration area for deaths, it was the largest single cause of maternal mortality and was responsible for about 34 per cent of all such deaths. Then too, puerperal septicemia is a disease which allows a reasonable degree of accuracy in its diagnosis, since it is associated with a definite condition, pregnancy, since it has a characteristic symptomatology, and since there is the possibility of confirming the diagnosis by demonstrating the etiological agent by laboratory methods. Finally, puerperal septicemia because of its bacterial etiology is a disease which one might expect to respond, by a decreased incidence, to proper preventive measures energetically directed against it. Its prevalence must be decreased.

SCOPE OF ANALYSIS AND SOURCE OF DATA

The object of this paper is to record and evaluate the course of puerperal septicemia for certain sections of the United States. It is, in other words, an appraisal of our experience with this disease. This can best be accomplished by studying the trend of the death rates from puerperal septicemia over as long a period of time as available accurate records make possible. The United States registration area for deaths established in 1900 by the Bureau of the Census comprised the following states: Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island and Vermont. In 1906 there were admitted to this area five more states, of which California, Colo-

rado, Maryland and Pennsylvania have remained. For these fourteen states then there are available reasonably accurate continuous records since 1900 or 1906. While in some instances, no doubt, individual states have accurate records beginning before 1900, it was decided to confine the present study to the states just mentioned for the period indicated, for thus advantage could be taken of the uniformity inherent in the federal compilation. These fourteen states have been combined for the purpose of this analysis into a group which will be designated throughout the rest of the paper as "total states." Recourse was had to the annual mortality reports (1900–1920) of the Bureau of the Census and to the reports of the twelfth, thirteenth, and fourteenth censuses for all basic data relating respectively to deaths and population.

METHODS

Accurate expression of mortality rates requires that deaths from any cause be related to those who are exposed to the given disease. Howard (1) has shown that this requirement is satisfied in the case of maternal deaths by relating the number of deaths from any puerperal cause to the sum of the living births and stillbirths. While, no doubt, this method is the ideal one, it could not be employed in the following study inasmuch as reliable information about the number of living births and stillbirths for many states for the entire period considered is not available. In view of the data available it seems best to relate the deaths from puerperal septicemia to the number of married females between the ages of fifteen and forty-four, inclusive, a method more nearly approaching the requirement previously mentioned than any other at our disposal. All rates therefore in this paper are expressed as the number of deaths from puerperal septicemia occurring in an indicated area during a year per 100,000 married females, age fifteen to forty-four, credited to that registration unit. It is realized that there are two slight errors in this method of expressing the rates. The first is owing to the fact that married women less than fifteen and over forty-four years of age contribute to the total mortality from puerperal septicemia; but in the United States death registration area for 1920, of a total of 5,616 deaths from puerperal septicemia only 75, or a little more than 1 per cent, occurred among women not included in the age group fifteen to forty-four. The second error is owing to a certain number of deaths from puerperal septicemia among unmarried women. It has been impossible to estimate the importance of this factor but it is considered to be small. These two slight errors should not seriously affect the accuracy of any general conclusion.

With the enumerated population of the twelfth, thirteenth, and fourteenth censuses as a basis, the population of each state for the various intercensal years was estimated by the arithmetical method. Then with the estimated populations for a given state by years and the total number of deaths from puerperal septicemia for the corresponding years the death rates were readily calculated by means of a slide rule. This method of calculation is sufficiently accurate for the present purpose.

To bring out the characteristic trend of the rates over the period considered, each series of rates has been smoothed by calculating its moving average. It has been observed that there is a four or five year cycle of fluctuation in the puerperal septicemia death rate. Since the rates here presented agree in a rough way with this observation, a five year grouping has been used in calculating the moving averages.

ANALYSIS

In the discussion which follows the essential facts will be presented by a series of figures. The numerical data upon which these figures are based will be found in Tables I and II.

TABLE I.

DEATH RATES FROM PUERPERAL SEPTICEMIA PER 100,000 MARRIED FEMALES, AGE 15-44, FOR CERTAIN STATES AND A MOVING AVERAGE OF A FIVE YEAR GROUPING FOR EACH UNIT, 1900-1920.

	TOTAL STATES		CALIFORNIA		COLORADO		CONNECTICUT		INDIANA		MAINE		MARYLAND		MASSACHUSETTS	
YEAR	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1900	43.3	....	....	....	....	....	44.5	....	35.1	....	23.6	....	....	....	29.4	....
1901	40.6	....	....	....	....	....	34.2	....	35.8	....	32.3	....	....	....	25.2	....
1902	39.0	42.2	....	....	....	....	39.0	37.8	27.3	35.7	47.5	35.1	....	....	23.9	28.7
1903	40.0	42.9	....	....	....	....	34.1	37.6	38.9	38.0	30.7	38.3	....	....	30.5	28.8
1904	47.9	43.8	....	....	....	....	37.2	39.1	41.5	37.7	41.3	35.5	....	....	34.3	29.8
1905	46.9	45.6	....	....	....	....	43.7	41.1	46.7	42.2	39.9	32.6	....	....	30.3	31.7
1906	45.1	47.7	36.0	....	84.5	....	41.3	40.7	34.2	43.1	18.2	32.8	53.3	....	30.2	31.9
1907	48.1	47.8	28.5	....	80.3	....	49.0	39.5	49.8	45.0	32.9	31.6	41.2	....	33.3	33.0
1908	50.7	48.6	39.9	33.8	79.3	75.1	32.4	39.5	43.3	47.9	31.6	33.2	59.5	48.2	31.3	34.5
1909	48.1	49.9	32.0	34.9	59.2	70.3	31.0	38.7	50.8	56.2	35.4	35.5	45.3	45.6	39.8	38.0
1910	51.0	49.2	32.6	36.6	72.2	64.6	43.9	36.7	61.3	58.4	47.7	33.2	41.6	46.7	38.1	39.6
1911	51.5	49.1	41.3	37.4	60.3	59.4	37.3	37.1	76.0	60.8	29.9	32.7	40.4	47.1	47.5	41.5
1912	44.8	49.3	37.3	37.4	52.0	57.5	38.9	38.3	60.7	62.5	21.6	31.5	46.8	46.6	41.1	41.9
1913	50.2	47.9	43.8	36.9	53.2	54.2	34.6	36.9	55.2	60.0	28.7	28.9	61.2	46.9	41.1	40.9
1914	48.9	46.7	31.9	34.0	50.0	53.5	36.8	37.9	59.3	56.0	29.6	29.2	43.1	48.3	41.8	41.0
1915	44.0	47.1	30.3	33.1	55.5	56.0	37.1	38.8	48.7	54.8	34.7	31.0	42.8	48.2	33.2	43.7
1916	45.7	45.8	26.9	31.7	56.9	61.8	42.3	37.9	56.3	56.6	31.5	29.5	47.8	44.6	48.0	43.8
1917	46.7	43.7	32.8	31.1	64.4	60.8	43.0	37.6	54.5	54.8	30.4	29.6	46.0	44.9	54.2	42.7
1918	43.5	43.7	36.8	31.9	82.1	61.2	30.1	38.1	64.0	57.2	21.2	28.1	43.2	44.8	41.9	44.9
1919	38.5	....	28.5	....	45.0	....	35.6	....	50.4	....	30.2	....	44.8	....	36.4	....
1920	44.2	....	34.5	....	57.6	....	39.6	....	61.0	....	27.1	....	42.3	....	43.8	....

TABLE II.

DEATH RATES FROM PUERPERAL SEPTICEMIA PER 100,000 MARRIED FEMALES, AGE 15-44, FOR CERTAIN STATES AND A MOVING AVERAGE OF A FIVE YEAR GROUPING FOR EACH UNIT, 1900-1920.

	MICHIGAN		NEW HAMPSHIRE		NEW JERSEY		NEW YORK		PENNSYLVANIA		RHODE ISLAND		VERMONT	
YEAR	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average	Death Rate	Moving Average
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1900	65.2	....	18.9	....	35.9	....	48.1	....	....	....	66.0	....	38.0	....
1901	66.5	....	24.5	....	27.4	....	45.3	....	....	....	53.4	....	22.3	....
1902	56.0	60.6	20.6	24.0	33.9	34.6	44.3	46.9	....	....	55.3	60.4	28.9	31.5
1903	53.2	56.5	29.9	25.4	32.4	36.1	43.9	48.5	....	....	45.5	60.9	26.6	30.5
1904	62.0	52.5	26.0	28.2	43.5	39.2	53.0	49.5	....	....	81.8	60.8	41.8	32.2
1905	44.7	50.6	25.9	28.9	43.1	39.8	56.2	51.8	....	....	68.6	62.2	32.9	37.2
1906	46.5	49.9	38.8	26.6	43.3	43.2	50.3	53.5	49.8	....	52.9	62.3	30.6	41.5
1907	46.5	47.5	23.9	28.3	36.5	42.5	55.7	52.0	53.3	....	62.2	57.2	54.3	46.9
1908	49.7	48.6	18.3	29.7	49.4	44.4	52.1	50.7	66.2	59.0	45.8	51.1	47.7	49.8
1909	50.0	51.3	34.7	28.5	40.0	46.6	45.7	50.2	62.8	59.9	56.3	48.6	69.0	50.6
1910	50.3	50.5	32.8	31.7	52.8	47.8	49.0	47.7	63.0	59.3	38.2	44.2	47.3	43.2
1911	60.2	53.1	32.7	34.5	54.3	48.9	48.4	46.4	54.0	57.8	40.6	41.3	34.6	41.0
1912	42.5	53.2	39.9	36.3	42.6	50.0	43.5	47.0	50.3	57.3	40.1	36.0	17.3	37.7
1913	62.5	51.8	32.6	36.6	54.7	48.2	45.3	46.3	58.8	55.2	31.5	35.4	37.0	33.5
1914	50.3	50.9	43.4	37.6	45.4	46.1	48.7	44.2	60.6	55.8	29.8	32.8	52.3	28.8
1915	43.7	54.1	34.3	36.8	43.8	45.2	45.8	43.6	52.3	56.4	34.9	34.3	26.3	32.0
1916	55.7	50.8	37.9	36.1	43.8	42.0	37.8	41.4	57.2	55.2	27.9	36.6	11.0	29.0
1917	58.4	50.1	36.0	33.5	38.6	39.0	40.2	38.3	53.0	52.1	47.3	38.1	33.2	23.9
1918	46.0	52.9	28.8	31.3	38.2	38.6	34.7	36.3	52.9	51.6	43.0	39.8	22.2	24.9
1919	46.8	....	30.6	....	30.5	....	33.1	....	45.1	....	37.3	....	26.7	....
1920	57.6	....	23.3	....	41.7	....	35.8	....	49.8	....	43.3	....	31.2	....

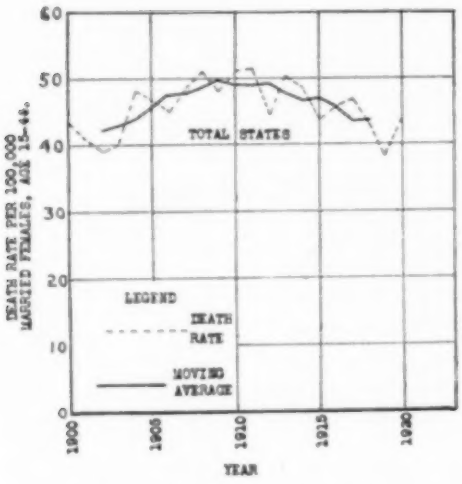

FIG. 1.- DEATH RATE AND MOVING AVERAGE FOR PUERPERAL SEPTICEMIA, TOTAL STATES, 1900-1920.

Let us first consider the course of events for the area made up of all the states, designated as "total states" as exhibited in Fig. 1 and Table I, columns 2 and 3. It will be observed that the curve representing the mortality from puerperal septicemia presents fluctuations which tend to be more or less periodic with an interval of three to five years between the crests of the cycles. This tendency of the rates has been taken into account as already explained in calculating the various moving averages. The highest rates occur at the middle of the twenty-one-year period, the trend of the mortality as measured by the moving average reaching its greatest height in 1909. Since that date there has been a gradual decline in the rates, although it should be noted that the average of the rates for the last five years of the period is greater than that for the first five years. In other words, for the fourteen states considered as a whole there is no evidence that a significant decline in the mortality from puerperal septicemia has occurred.

The trend for Connecticut (Fig. 2 and Table I, columns 8 and 9) exhibits only comparatively slight variations and no marked tendency to increase or decrease. Its peak is reached in 1905 and the average rates of the first and last five

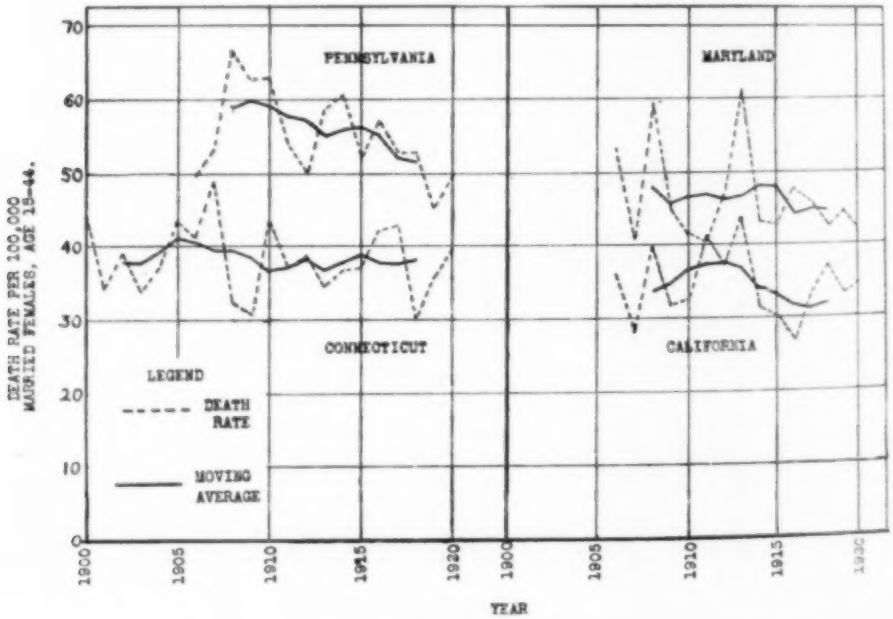

FIG. 2.- DEATH RATE AND MOVING AVERAGE FOR PUERPERAL SEPTICEMIA, PENNSYLVANIA, CONNECTICUT, MARYLAND AND CALIFORNIA, 1900-1920.

years are so nearly alike that it is safe to say that there has been no significant change in the mortality during the twenty-one years recorded. The constancy with which the trend maintains itself at about its initial level is the markedly characteristic thing about the course of events in Connecticut.

The trend for Pennsylvania (Fig. 2 and Table II, columns 10 and 11) since 1909, when the peak of its trend was reached, has been distinctly and constantly downward.

In the case of California (Fig. 2 and Table I, columns 4 and 5) the highest point of the trend is reached in the years 1911 and 1912. There is then a decline in the rates with a slight rise at the end of the period. The average of the rates for the last five years, however, is a little less than for the first five years, indicating possibly a slight significant downward tendency of the rates.

Maryland (Fig. 2 and Table I, columns 14 and 15) is a state presenting a trend which maintains its initial level with considerable constancy. The average rate for the last five years is somewhat lower than that for the first five years, indicating a slight though probably insignificant downward tendency of the rates.

In the case of Rhode Island (Fig. 3 and Table II, columns 12 and 13) the trend during the middle of the period was distinctly downward. Toward the end of the period, however, the trend became upward. Still the average of the last five rates is much less than for the first five rates, showing a marked decline in mortality for the period as a whole.

The trend of the rates for Colorado (Fig. 3 and Table I, columns 6 and 7)

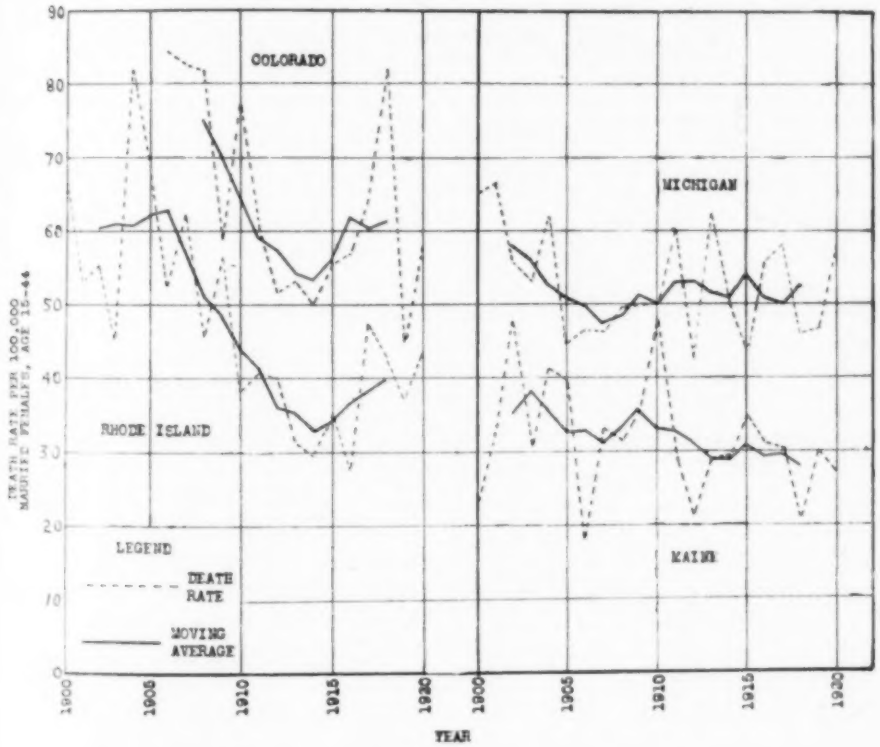

FIG. 3.- DEATH RATE AND MOVING AVERAGE FOR PUERPERAL SEPTICEMIA, COLORADO, RHODE ISLAND, MICHIGAN AND MAINE, 1900-1930.

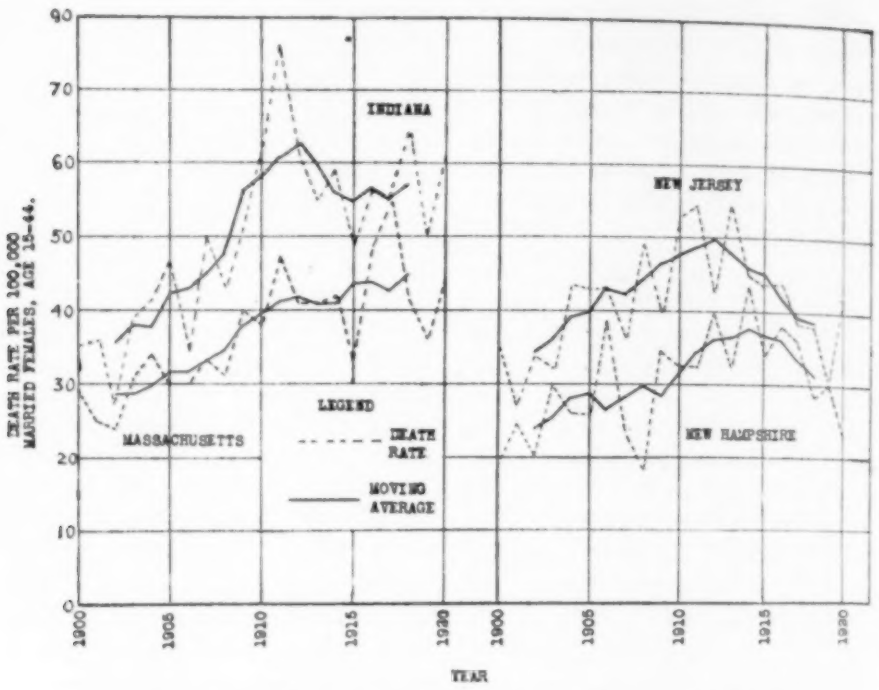

FIG. 4.- DEATH RATE AND MOVING AVERAGE FOR PUERPERAL SEPTICEMIA, INDIANA, MASSACHUSETTS, NEW JERSEY AND NEW HAMPSHIRE, 1900-1920.

also is U-shaped with the lowest point of the curve in 1914. The rates for the end of this period are on the average lower than for the beginning.

A glance at the chart for Maine (Fig. 3 and Table I, columns 12 and 13) is sufficient to indicate that the characteristic point about the trend is its consistent tendency to decline. The trend after reaching its peak in 1903 gradually slopes downward to the end of the period.

Michigan (Fig. 3 and Table II, columns 2 and 3) has a trend which is more or less U-shaped. It is highest in 1902, declines to its lowest point in 1907 and then gradually ascends to a level which it maintains more or less constantly to the end of the period. On the whole the course of mortality has a downward tendency.

Of the states so far considered, Massachusetts (Fig. 4 and Table I, columns 16 and 17) is the first to exhibit a consistent upward trend. This reaches its highest point in 1918, and the last five-year average is much higher than the first five-year average. It is quite evident from the data and the curve of the trend that in this state the mortality has significantly increased.

For the first part of the period the trend for Indiana (Fig. 4 and Table I, columns 10 and 11) is constantly upward. The peak is reached in 1913 and after this date the trend is slightly downward. The rates at the end of the period, however, are much higher than at the beginning. Considering the entire period, then, this state exhibits a decided tendency for the rates to increase.

During the first part of the period the trend for New Hampshire (Fig. 4 and Table II, columns 4 and 5) moves steadily upward. The peak is reached in 1914 and then there is a slight decline to a point above the starting point. For

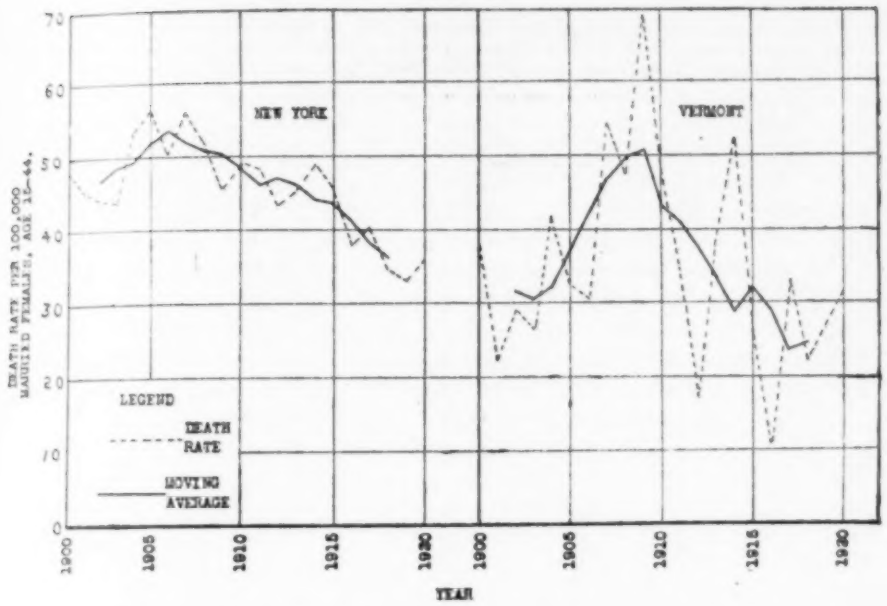

FIG. 6.- DEATH RATE AND MOVING AVERAGE FOR PUERPERAL SEPTICEMIA, NEW YORK AND VERMONT, 1900-1920.

the whole period this state exhibits a slight tendency to increased mortality.

In the case of New Jersey (Fig. 4 and Table II, columns 6 and 7) the trend is upward to 1912, when it reaches its highest point, and after that it is downward. The average rate of the last five years is slightly greater than for the first five years, indicating for the whole period a slight increase in the mortality.

The trend for New York (Fig. 5 and Table II, columns 8 and 9) since 1906, when the peak was reached, has been distinctly and constantly downward. The trend exhibited by this state and that for Pennsylvania are much alike.

The curve for Vermont (Fig. 5 and Table II, columns 14 and 15) is lower at the ends of the period and reaches its peak in 1909. It is lower at the end of the period than at the beginning, in this respect differing from the trend for New Jersey, which it resembles in other respects.

SUMMARY

(1) In column 2, Table III, the relative position of each state is shown according to the average rate for the entire period. The average rate of Colorado, the highest, is more than twice that for New Hampshire, the lowest.

(2) A study of column 3, Table III, shows that the moving average in the case of each of seven states and total states reached its peak during the period 1906–1912. For all the seven states except New Jersey which have the peak of their moving average within this period, the moving average by 1918 has declined to a point below that of its initial value. That is, in spite of high rates at about the middle of the period, these six states show for the entire period a downward trend.

(3) When the averages of the rates for the first five and last five years of the period are compared, it is evident from the plotted curves of the moving averages

TABLE III.

AVERAGE OF THE RATES FOR THE ENTIRE PERIOD CONSIDERED, YEAR AT WHICH THE CURVE OF THE MOVING AVERAGE REACHES ITS HIGHEST POINT, AND THE PERCENTAGE INCREASE OR DECREASE OF THE VALUE OF THE MOVING AVERAGE FOR 1918 FROM THAT FOR THE BEGINNING YEAR, 1902 OR 1908, FOR EACH UNIT.

Unit	Average Rate for Entire Period Considered	Peak Year of Moving Average	Per Cent Increase (+) or Decrease (—) of Moving Average Value for 1918 from that for 1902 or 1908.
(1)	(2)	(3)	(4)
Total States	45.7	1909	+3.4
New Hampshire[1]	30.2	1914	+30.4
Maine[1]	31.7	1903	—19.9
California[2]	34.2	1911 & 1912	—5.6
Vermont[1]	34.8	1909	—20.9
Massachusetts[1]	36.9	1918	+56.4
Connecticut[1]	38.4	1905	+0.8
New Jersey[1]	41.5	1912	+11.5
New York[1]	45.6	1906	—22.6
Maryland[2]	46.6	1914	—7.0
Rhode Island[1]	47.7	1906	—34.1
Indiana[1]	50.0	1913	+60.2
Michigan[1]	53.1	1902	—12.7
Pennsylvania[2]	55.3	1909	—12.5
Colorado[2]	63.5	1908	—18.3

[1] Admitted to Registration Area in 1900.
[2] Admitted to Registration Area in 1906.

and from column 4, Table III, that nine of the fourteen states—Maine, California, Vermont, New York, Maryland, Rhode Island, Michigan, Pennsylvania, and Colorado—exhibit a decline in mortality from puerperal septicemia. Total states, New Hampshire, Massachusetts, Connecticut, New Jersey, and Indiana, show an increase in mortality. For the first group of states the decrease after the peak year of the moving average was greater in amount than the increase from the initial value of the moving average to the peak year value.

(4) Fig. 1 presents some slight evidence possibly of a long-time fluctuation in the death rates from puerperal septicemia.

(5) A comparison of the various states shows that the course of the mortality from puerperal septicemia has been extremely variable in regard to the size of rates and the trend.

(6) During recent years, that is, from about the middle of the period or the peak year of moving average, all of the units with the exception of Massachusetts show a decrease in the mortality from puerperal septicemia.

(7) For the whole period, when all the states are considered as a unit there is no evidence of a significant downward tendency in the rates from puerperal septicemia.

(8) The high rates, the lack of a consistent downward trend, and the variability of the rates for the states studied demand that greater attention be given to the prevention of puerperal infections and that efforts to accomplish this end be organized as soon as possible.

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NUTRITION WORK IN THE CITY OF ROCHESTER

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ROBINSON, in "The Mind in the Making," has called attention in a forcible way to the little that is accomplished in changing conditions in human life by training the intellect as compared with what can be brought about by training the intelligence. This is clearly illustrated by the remarkable inadequacy of results obtained from didactic teaching of health facts and rules in comparison with what has been accomplished in Rochester, New York, by investigating actual health factors among its children and appealing to the intelligence of all concerned to bring about improvements in the conditions found.

The city of Rochester has been noted for its progressive activity in community interests and especially in undertakings that have to do with health, yet, as a result of weighing and measuring the children of the city, it was discovered that the proportion of those who were malnourished was high. The Tuberculosis Association acted as the agency in mobilizing the community forces. All of the municipal and social groups dealing with childhood coöperated. The Board of Health, the Board of Education, the University of Rochester, the Chamber of Commerce, the Rotary Club, the Tuberculosis Association, and all other child-helping organizations focussed their energies upon the task of finding a program which would meet the need adequately.

Following an account of the results secured in Chicago from the use of the nutrition class program a delegation was sent from the Board of Education to determine the facts and the advisability of adopting this plan in Rochester. After a careful investigation the committee reported favorably. The previous year much attention had been given in Rochester to the removal of physical defects found in children, especially diseased adenoids and tonsils. Some 17,000 operations had been performed without unfavorable results. In putting this program into effect a fine spirit of coöperation had been developed, and, to an unusual degree, the community had shown confidence in the group of leading citizens who were the chief supporters of the undertaking.

Through the Tuberculosis Association we were invited to meet in conference the executives of the various educational and child-helping groups of the city. Preliminary meetings were held to which the various organizations interested in child welfare sent representatives who united on a definite nutrition program.

These meetings led up to a Nutrition Institute—the first in a series of three held in Rochester in the three years which the nutrition program has been in operation. More than a hundred physicians, teachers, nurses, social workers, and other persons directly interested in the care of children were enrolled in this first institute. The chief ends in view in this course were (1) to inform leaders in the educational and child-helping groups and to acquaint them with the nutrition program, (2) to place the responsibility for carrying out the home and school program squarely upon the community, so as to insure adequate financial and other support, (3) to train workers.

Our program for the work in Rochester was based upon two formulations of experience with malnutrition in connection with work in clinics, schools, and homes. The first of these is the fact that by far the greater number of malnutrition cases are due to one or more of five causes: (1) physical defects, especially

naso-pharyngeal obstructions, (2) lack of home control, (3) overfatigue, (4) faulty food habits and improper food, (5) faulty health habits. The other of these fundamental principles is that in order to overcome malnutrition in a community there must be an effective coördination of four significant forces, no one of which can remain inactive without endangering the success of the efforts put forth by the others. These forces are those of (1) the home, (2) the school, (3) medical care, (4) the child's own interest.

During the campaign against diseased adenoids and tonsils the press of the city had addressed itself especially to the task of helping parents to get a new viewpoint with reference to hospitals and operations. This had succeeded to the extent that one child who did not need an operation was found to have bought the ticket of another child in order that he might share in the enjoyable times reported by those who had already been through the mill. When the nutrition program was put into effect the policy was adopted of furnishing the press with simple, direct news stories which served further to insure to those who were conducting the work the confidence of the public. In many cities the newspapers hesitate to give much space to health work but in Rochester there was no question on this score. As one reporter stated the situation—"The nutrition work is as good as a murder trial—front page, big headlines, everybody looking for it!" Despite this striking statement the material published, while thoroughly interesting, was entirely free from the sensationalism so often judged necessary in attracting the public eye.

Weighing and measuring were the first steps in the actual application of the program. Twenty-eight thousand children were weighed and measured in 1921, and 35,000 in 1922. Approximately 30 per cent were found to be 7 per cent or more underweight for their height. Nutrition classes were organized for the care of the worst cases of these malnourished children. Each school year at any given time 1,500 children are members of the classes in addition to the larger number who receive nutrition instruction in various school groups. In this city, as elsewhere, the largest percentage of underweight was found among children from well-to-do American families. This amounted in a typical school attended by children of "the better class" to 36 per cent, while the percentage ran as low as 23 in a group of those having supposedly inferior health opportunities. Each child placed in a nutrition class was given a physical-growth examination, a social examination, and, in case of need, a mental examination. Nutrition or diagnostic clinics were provided for problem cases which require a greater amount of medical investigation and care than can be given in the routine of the nutrition class.

The classes in the public schools were soon taken over by the Board of Education while those in the parochial and rural schools continued under the direction of the Tuberculosis Association. All school principals and all members of the department of public health education have taken the training course in the nutrition institutes. The school authorities have given the most thorough coöperation on the basis of a recognition of the fact that good health is an essential in making headway in education, and that children who are below par should be brought into good condition before pressure is placed upon them in order to keep them up to fixed standards. The boy or girl who has the misfortune to be absent on account of illness should be put on a modified school program until he has regained the weight lost during his illness, instead of being faced on his return to school by work in arrears which must be "made up" inside of a set limit of time although he is not yet fit for his ordinary tasks. In the parochial schools the priests showed, by their presence in the classes and by

their influence in the homes, an active interest in this health work.

Evidence as to the good effect of this educational policy manifested in improved conditions and work, is found in the general approval of school principals and teachers, most of whom have taken the nutrition institute course. Children who have been given simplified programs in school so that time might be taken for additional rest periods, for instance, have shown on their return to full schedules when they were back to normal condition, that they were able to do their work much more effectively than had been possible before the beginning of the new regimen.

One of the fundamental requirements of the program is the attendance at nutrition classes of the parents of the children belonging to them. Each time that a study has been made it has been strikingly shown that the cities which have insisted upon meeting this requirement secured a much higher percentage of gain than was made by the classes in which laxness was permitted in this respect. In Rochester it was found that in a group of 25 nutrition classes the five best classes made an average gain of 480 per cent of what average children of the same ages would be expected to make, while the five poorest made an average of 196 per cent. The first five averaged 149 attendances of parents, while the lowest five averaged only 83. When this is reduced to more exact figures of the relation in percentages of parental to child attendance the respective showings for the two groups are 52 and 31 per cent.

The average initial underweight of 494 children in the 25 classes was 11.3 per cent and the final underweight at the end of a three months period was 6.6 per cent. This means that in this period 42 per cent of the initial underweight had been overcome. This is a measure which is not commonly used, but which has some definite advantages in comparing the work of various classes. The usual method has been to compare the percentage of gain made by the groups under consideration. In this particular study while the general range of the classes on the two bases is the same there are some marked exceptions. Special conditions may favor the average gain in a school which has not really lifted as heavy a load of underweight as has another school which has made a lower average of gain. The best school in this respect had reduced its underweight 72 per cent while the poorest had made a reduction of only 20 per cent. The best school on the basis of the percentage shown by the relation of the actual gain to the gain expected for children of these ages made 554 per cent while the lowest made 159 per cent. The school which made the greatest reduction in the load of underweight made an average gain of 69 per cent less than the school ranking first in the relation between actual and expected gains. On the other hand, the school making the greatest per cent of gain made 14 per cent less reduction of the load of underweight than did the other.

The average gain for the 25 classes in the public schools was 305 per cent. In the public schools about 35 per cent of the graduates had entered the safety weight zone in three months or less. About 45 per cent accomplished this improvement in from 13 to 18 weeks, 11 per cent in 19 to 26 weeks, and 9 per cent required more than half a year. It is suggestive to find that the percentage of gain made by the children during the entire period in which they were under observation was in inverse ratio to the gain made before graduation. That is to say, that in general those making the most rapid initial improvement did not make as good progress during the entire time as did those who gained somewhat more slowly. It must be remembered in this connection that those in the classes for a longer time had more opportunity to get their new health habits well established and also less time to fall away from their better

health and food habits than had those who had graduated sooner.

In a comparison of initial underweight with conditions at the end of the period of observation, that is to say, 16 months after leaving the classes, it was found that 81 per cent were better off than they were at the time when they first entered the classes. Sixty-three per cent of the graduates were still in the safety weight zone 16 months after beginning the program.

Records had been kept of the extent to which many of the children had continued, after graduation, to observe the instructions given them with reference to lunches, rest periods, etc. On this basis they were divided into four groups having at one extreme those who after graduation had paid practically no attention to the directions given them in class, while at the other extreme were those who had followed instructions most faithfully. The measure taken in this case was the ratio between initial underweight and final condition. It was found that the group paying most attention to instructions made more than double the progress accomplished by those who neglected the directions given them. Using the measure of persistence in the safety weight zone up to the end of the period of observation, those who followed instructions had more than twice as many in this zone at the end of the time as had those who failed to keep them.

A study had already been made of two groups of Rochester children, numbering 2,127 and 953 respectively, with reference to the relationship of underweight and overheight. It was clearly shown in a comparison made between those who were 10 per cent or more above average weight for height with those 10 per cent or more below average weight for height that the underweight children were taller for their ages than were those in more normal condition of weight.* This was more marked in the older children than in those in the earlier years. In studying the graduates of the nutrition classes it was found that a closer classification could be used and they were divided into those 10 per cent or less underweight for height and those who were more than 10 per cent underweight. In both the public school and the Tuberculosis Association groups the children who were more underweight ran taller for their ages than did those of less underweight. This was true of both sexes. The most marked difference was in the public school girls who showed 3 per cent greater height for the increased underweight group than was found in those 10 per cent and less underweight for height. In general, the height for age of the public school children exceeded that of the children in the parochial and other schools in charge of the Tuberculosis Association. Several groups of children attending private day and boarding schools in other sections of the country showed greater height for age than appeared in the Rochester public school children. It is noteworthy that the group of public school nutrition class graduates here studied averaged even greater height for age than was found among the private school pupils.

One of the problems met by the nutrition worker is the fact that as fast as children who are underweight make gains in weight their height increases as well and the new height calls for additional weight. This study shows that there has usually been a retardation in height as well as in weight and that as soon as there is an improvement in weight, height begins to increase. Instead of the dictum recently made by a prominent investigator to the effect that if one will look after the inches the pounds will take care of themselves it is evident that a large group of children already have more inches than they are able to sustain by pounds and that the best way to get them started toward more inches is to make conditions favorable for increasing their weight, or, it would be better to say, conditions favorable for normal growth.

* Figures available on request.

When the graduates were grouped according to their persistence in the average weight zone it was found that those who had continued in this zone until the end of the period of observation had made rather more than the expected gain in height, but that those who had relapsed into the borderline weight zone (less than 7 per cent underweight for height) had averaged 25 per cent more height increase while those who were finally again in the danger zone (more than 7 per cent underweight for height) had made 50 per cent greater height increase than had the first group.

Much credit for the results secured is due to the physicians of the city who have recognized the importance of this work as an opportunity in preventive medicine. There is evidence of an increasing realization among the medical profession of the significance of physical defects and of the conditions which bring about overfatigue. The diagnostic clinics established in the Rochester hospitals, corresponding with the work of the physicians in the nutrition classes, helped to set more definite standards to which children must be brought before progress can be expected—that of being "free to gain." The third of our institutes was held in the Eastman Dental Infirmary and part of the program was given to the results of research which is showing that work with teeth must be kept closely associated with the general development of bone structure and condition of the body.

The various child-helping organizations following the lead of the Rochester Tuberculosis and Public Health Association, as the Tuberculosis Association is now called, have been large factors in the progress achieved. The school authorities have shown a new and remarkable state of mind in realizing the common sense of not attempting to force undernourished children to try to keep up with the pace set for normal children. There has been no difficulty in securing adjustments of program in either public or parochial schools. The part played by the clergy of the various parishes in the latter schools has been very valuable. In the public schools the work is in charge of the Department of Health Education. This has made it possible to modify the work in physical exercise and relate it to growth and development. Credit is given for rest periods as much as for exercise periods. Time and place are found for rest periods as a matter of course. The summer camp is a regular feature in meeting the needs of children who require full time supervision in order to gain an impetus toward increased weight and proper food and health habits.

The term already used to designate this situation—a community job—is well justified in the interest and support given to it by children and parents. The public exercises attending the "graduation" of the first two hundred who had come up to the average weight line was an event not only to the families directly concerned but to all the children in the schools and to their parents. The permanence of results having this support cannot help but be greater than in the case when the strong tide of public opinion is not utilized as one of the motive forces of the movement. The gratitude of parents has been freely expressed not only with reference to the direct health instruction and increased health, but also for the attitude of the school and health authorities in making the attainment of health the first and fundamental factor in educational progress. In Rochester all of this shows a new appreciation of the old adage, "a sound mind in a sound body."

SUMMARY

1. The percentage of gain made by various groups of children is found to be in direct relation with the attendance of parents at nutrition classes. A group of five schools making the best average gain—480 per cent—had 52 per cent of parents present, while a group of five showing the poorest gain—196 per cent—

had only 31 per cent of parental attendance.

2. In three months a group of 25 schools reduced its initial underweight by 42 per cent. The school making the best record made a reduction of 72 per cent while the poorest record was 20 per cent.

3. About 35 per cent of the graduates came up into the safety weight zone in three months and less, 45 per cent in 13 to 18 weeks, 11 per cent in 19 to 26 weeks, and 9 per cent required more than six months to graduate.

4. Sixty-three per cent of the graduates were still in the weight safety or borderline zones—less than 7 per cent underweight for height—at the end of 16 months spent in nutrition classes and under observation.

5. Those children who had continued to follow the directions given them in the nutrition classes more than doubled the record of gains made by those who were less attentive to class instruction. Those who had followed directions also showed double the persistence in remaining in the safety weight zone as compared with those who did not.

6. Children who are underweight for height are taller for their ages than are those who are in more nearly normal relation of weight to height.

7. A comparison of the members of various school groups with reference to height for age showed greater height for age among the pupils in leading private day and boarding schools than was found among those in the Rochester schools. The children graduating from nutrition classes in the public schools of Rochester were on the average taller for age than were the members of the private day and boarding schools.

8. Graduates of nutrition classes who had relapsed into the danger zone at the close of the period of observation had made 50 per cent greater increase in height, and those in the borderline zone 25 per cent greater increase in height for age than had those who remained in the safety weight zone.

9. The advance in weight sufficient to bring children up into the safety weight zone is accompanied by more than the expected increase in height for the same period.

10. The coördination of all the forces in this community working to raise the standards of child health has accomplished results, shown by an average gain of 305 per cent among 1,000 children, which challenges the attention of all other communities interested in the difficult problem of malnutrition.

STATISTICAL TABLES

(The following tables give a brief summary of the material worked upon. Detailed information will be furnished anyone who may be interested.)

Sex

	Cases	Percentage Male	Female	Average percentage underweight
Nutrition classes	490	50	50	11.5
Graduates	165	48	52	9.6

Persistence at end of period of 16 months after entering class

	Normal and borderline weight zones Percentage	Underweight Percentage
Male.....	71	29
Female.....	62	38
Both sexes.....	66	34

Relation of following class directions (after graduation) to permanence of results and to underweight reduced

	Followed directions In full	In part	Not at all	Entire group
Ratio between initial and final underweight	3.6	1.9	1.6	1.9
Remaining in borderline and safety weight zones 16 months after entering class, percentage	78	65	58	63
Again underweight, percentage	22	35	42	37

Time required for graduation

	Male Per cent	Female Per cent	Both sexes Per cent
12 weeks and less...	37	33	35
13 to 18 weeks.....	38	51	45
19 to 26 weeks.....	14	8	11
More than 26 weeks.	11	8	9
	100	100	100

Attendance of parents in relation to percentage of gain

	Percentage Actual of expected gain	Percentage Attendance parents
5 schools making best gain...	480	52
5 schools making least gain...	196	31

Reduction of underweight

	Average percentage underweight reduced
25 schools	42
Best record	72
Poorest record	20

THE VIRGINIA PLAN FOR HEALTH EDUCATION IN THE PUBLIC SCHOOLS

MARY E. BRYDON, M.D.

Director, Bureau of Child Welfare, State Board of Health, Richmond, Va.

Read before the Child Hygiene Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 11, 1923.

I FEEL that the principal reason that this plan of Health Education is attracting attention is that a program has been worked out whereby in a comparatively short time every child in the State of Virginia will receive an annual physical inspection. This is being done in spite of the shortage of doctors and of trained public health nurses in the rural sections. Our aim to have every child in the state put into a physically fit condition to receive his education, is no different from the aim of every state's school health program in the country. The difference lies in the fact that our application is different and that we are actually getting it done as rapidly as the machinery concerned with the performance of such a vast piece of work can be put into operation. The means by which we are putting this program into operation, its comparatively small cost, and the direct results that have been observed to follow its practice are, I believe, what you want to know.

There are 475,000 school children enrolled in Virginia. Of these 356,000 were given their annual physical inspection last session. As 250,000 of these children were in the rural districts where the facilities for doing this work are naturally poor, you can readily see that special machinery had to be organized to carry out such a large program.

Being a physician, it was only natural that my original bias was toward inspections to be undertaken by physicians; but the results of our three years' experience justify me in believing, certainly so far as Virginia is concerned, that the physical inspection of children in all the public schools, elementary or high, is properly the work of the teacher.

The inspection is a simple one. It consists of weighing and measuring the children, looking at their teeth, and testing the vision and hearing. After inspecting the children, the teacher makes a record of this inspection for her file and sends to the parents a notice of the obvious defects which she finds, advising consultation with the family physician or dentist, as the case may require. The teacher is instructed not to make diagnoses or to prescribe treatment, but merely to report obvious departures from the normal. We carefully differentiate between the physical inspection by the teacher and the medical examination by the doctor.

Teachers, physicians and other well informed people might protest that teachers as a class are not able to make physical inspections with any degree of accuracy. That is indisputable if by the term "physical inspection" is meant such an examination as would be made by a trained physician; but it does not require years of training in medicine to determine whether a child's sight is obviously defective or his hearing impaired. An ordinarily intelligent person can determine whether a child is a mouth or nose breather, and knows that if exclusively or principally the former, there is something wrong requiring medical attention. The distinction that is made between "inspection" and "examination" has been illustrated by the simile of a person buying a desk. The prospective purchaser looks the desk over, feels it to see if it is well finished, opens the drawers to see if they run smoothly, pushes against it to see if the joints are solid, etc. That is inspection. If it is found that one of the drawers will not open properly and that there is a rough place on the surface that would interfere with writing, the desk is then sent for "exam-

ination" to an expert cabinetmaker who can soon determine why these defects exist and the proper method of correcting them.

The ideal plan would be for each child to have annually a complete medical examination given by his family physician; but we appreciate the present impossibility of realizing this object, hence we utilize the teacher for a simple inspection. Those defects so apparent that they may easily be recognized are discovered, and the parents notified of the necessity of taking the children to a physician who will "examine" them and effect the needed repairs.

During the past year 76 per cent of the children in the rural public schools of Virginia were inspected by teachers. Without the teachers' contribution to this work it would have been impossible to inspect this large number of children. This means that a great many of these children who are leaving our schools would never have had their defects discovered and corrected, and many more would have been handicapped for years. This plan makes more children physically fit and secures results more quickly than any other that can be worked *under existing conditions*. This very real advantage alone justifies our program.

The teacher who has had specific training for this particular phase of work can prepare the child for the annual inspection so that it will be done in a normal, natural way without attracting undue attention to the body and its functions. It can be made a natural part of the school procedure. It is difficult to test the vision and hearing of a child who has been made nervous by the sudden appearance of strangers.

The inspection is a personal introduction of the physical side of the child to the teacher. Teachers testify that they get a very much better understanding of the physical condition of their pupils by inspecting them themselves than they can by looking over cards recording someone else's inspection. This knowledge gained by doing makes the teacher more interested in the physical well-being of her pupils, and is the first, and perhaps the most important step, in carrying forward a more comprehensive health program in the schools.

This first-hand knowledge stimulates constant watchfulness for symptoms of disease, and has prevented epidemics and frequent sickness in many places. In this way it has increased school attendance. Knowledge of the child's handicaps has enabled the teacher to deal more intelligently with the problems of seating, regulation of light, home study and the daily program. The teacher is with the children all the time they are in the schoolroom, and has them under daily observation. This provides innumerable opportunities to encourage the correctional work.

There are two admitted difficulties in the way of physical inspection by the teachers. One is the suspicious attitude of the parents; the other is the unwillingness of the teacher to undertake the work. Both of these difficulties are due to misapprehension of the facts.

It is natural that parents, like other people, will not believe that a layman can do the work of a professional; but the answer to that objection is: We do not ask a layman to do professional work. Our physical inspection is so simple that anyone intelligent enough to be a teacher will be sufficiently intelligent to make the required inspections.

The other objection also vanishes with a comprehension of the work and its relation to the ordinary duties of the teacher. Many teachers have been distinctly unwilling to undertake this new work; but few, if any, have remained unwilling after they have been made to understand how they can aid in the physical well-being of their pupils, and the extent to which health and strength contribute to mental development.

We do not claim that our teachers are inerrable. It may be that some of them

regard this health work as an auxiliary of education and not as a part of it, and that others are too scrupulous in making inspections. It may be that an occasional teacher will suggest remedies for defects, although they are cautioned against doing so. It may be that sometimes a teacher may make the mistake of sending a child to the doctor for treatment when treatment is unnecessary. But these exceptional instances do not weigh against the mass of favorable experiences.

We are now working toward an end that will, if reached, reduce still further the demands upon the teacher. We are striving to have all children made physically fit before they enter school; and we hope for the day when the majority of the patrons of our public schools will have their children receive medical examinations regularly.

In some of the counties in Virginia, plans are already being worked out by the health authorities to provide for the inspection of children of preschool age and the correction of defects during the summer previous to the opening of school.

Our fundamental proposition is that all authority over the classroom should be vested in the teacher, and that to introduce a doctor or nurse as a temporary authority is subversive of that proposition and fundamentally unwise.

We have chosen to consider the child as a unit, neglecting no element of his personality. We attempt to provide for his normal development, physically, mentally, morally and spiritually. We try to keep constantly in mind the relations of these factors in development; and we believe that the child's guidance, other than that given at home or by the church, should be left, so far as possible, with one person. If that be a proper conclusion, the obvious director must be the teacher.

We may take for granted the teacher's ability to aid in the mental, moral and spiritual instruction of children; and, in order to supply the demand for well-trained teachers who are prepared to direct the child's growth along all health lines, the State Board of Health of Virginia and the State Board of Education are coöperating in supervising courses in health and physical education in all schools in the state actively engaged in preparing teachers. They also coöperate in conducting a correspondence course in health work for teachers. According to a law passed by the General Assembly in 1920, the State Board of Education, with the approval of the State Board of Health, has established "regulations whereby on or after September, 1925, no applicant may receive a certificate to teach in the schools of this state who does not present, first, satisfactory evidence of having covered creditably an approved course in general physical education in a training school, or course for teachers recognized by the State Board of Education as a school or course in good standing."

I have said that our records for last year showed that 76 per cent of the children had been inspected. In conformity with the law just noted every teacher will have been prepared, prior to 1925, for the intelligent inspection of the children; and we deem it safe to anticipate virtually 100 per cent inspection during 1925 and the years following.

About 6,000 teachers' certificates are issued annually; each one of these must show credit for this health course before the certificate is endorsed by the State Board of Education.

The course as outlined has a minimum credit of one college session hour and consists of three main divisions: (1) physical defects and their control; (2) communicable diseases and their control; (3) health education, which includes first aid and prevention of accidents, care of school plant, personal hygiene, physical training, and mental hygiene.

This course in health and physical education was given last year in eight normal

schools and in seventeen accredited colleges of the state. It was also given in the summer schools. During last year 5,250 men and women students (including those taking the correspondence course) received this health instruction as a part of their preparation for entering the teaching profession. The fact that this course in health education is being recognized as an important part of the college curriculum and is being given due college credit, is increasing the effectiveness of the work in the public schools.

One of the most powerful forces that we can have moving us is an enthusiastic, trained teaching body with a thoroughly awakened health consciousness. Cooperating with them we hope to have a corps of doctors, nurses, specialists, and an appreciative, understanding public.

So far as the nurse is concerned, we encounter few objections to our proposition, but we cannot overlook some medical opposition. Doctors are not always in sympathy with our work and are sometimes inclined to magnify any mistake made by the teacher.

The medical profession should understand that our plan is really favorable to the doctors. Physical inspection should not be made a part of the business of the doctor. He has not sufficient time to make a thorough examination of every child in the average county, and so he must overlook many or slight his work.

Our program is, however, not primarily in the interest of the medical profession. We believe that it is helpful to the doctors, but that is incidental. Our first concern is for the child; and we know that the teacher will not assume her full responsibility toward her pupils so long as a doctor or a nurse is taking part of the responsibility.

In the cities where there is a school doctor, these things must be remembered:

If he is a full-time health officer, he has duties other than school duties or he has several schools under his jurisdiction.

If he is a part-time official, his interests are divided between public duties and private practice.

The public health official does not make a diagnosis. He recommends that the child who has a defect should be taken to a physician or a dentist. If the public official makes a diagnosis, he is apt to come into conflict with the private practioner to whom the child is referred.

Now it must be obvious, with these facts in mind, that the school doctor is in a particularly ticklish position on the one hand with the public; on the other with his fellow physicians. Our plan saves him much worry.

The school physician has a definite place in our plan. No child should be permitted to engage in strenuous exercise or in competitive games if he is underweight, or until he has been examined for hernia, and heart and lung lesions.

These medical examinations are not a part of schoolroom routine and they should not be made in the classroom. Heart and lung examinations should not be made through clothing. The school physician should make these examinations in his office, and should issue to the school authorities a certificate based on his findings.

The question of cost has given us little concern. The work of physical inspection is under the joint charge of the state school nurse and of the state health supervisor, who is not a nurse but a teacher, and who is employed jointly by the two state departments. The former visits counties where no school nurse is employed and demonstrates the inspection to the superintendents and teachers; the latter directs the health training of the teachers and in the teacher-training institutions and works with the county superintendents in securing the application of health principles in the schoolroom. The actual work of inspection is done by a corps of teachers already employed at public expense. Thus the extra cost of inspecting 475,000 school children is inconsiderable compared with what it would

be if it were done by a corps of physicians paid for out of the state treasury.

The nurse also has an important place in our program. She follows up the work of the teacher, after she has assured herself of their ability to do their part. She sees that the parents are impressed with the necessity for having the corrective work undertaken. This should be the main work of the rural school nurse and it is enough to require virtually all of her time. Unfortunately we have only forty public health nurses in thirty-four of our one hundred counties. They can give only part of their time to school work. But in spite of this fact, they have been able to bring about a large number of corrections. The teachers in very many instances where there are no nurses have interested themselves in getting this part of the work done, realizing as they do the tremendous advantage in having physically fit children to teach.

The value of any work is best gauged by its results. The most enthusiastic opinion will not weigh in the balance against a conflicting record. Therefore, while I cannot give you complete figures covering the state as a whole, I should like to present a few statistical observations.

The correction of defects has been developed mainly through dental clinics. When the inspection was first begun, the appalling number of dental defects was an outstanding feature, and when the bureau in the second year of its organization received an appropriation for the school work, a dentist was employed to develop this part of the work. Little headway was made at first, but after getting the cooperation of the State Dental Association and demonstrating the need for the correction of dental defects to the school authorities in the rural districts, school dental clinics have become part of the health propaganda in a large number of our counties. Last year our state dentist had under his supervision 10 full-time dentists, and one part-time dentist. Twenty-one thousand, three hundred forty-nine children were given opportunity in these clinics to have their mouths put in order; the total number of operations was 35,156.

Little has been done to develop nose and throat clinics, but a few have been held by public health nurses and other interested persons as follow-up work in a few rural communities. From a few clinics a report comes of 1,853 children having been operated on for adenoids and diseased tonsils. As we have no specialist attached to this bureau, this work was not supervised as we should have liked.

These are just two items in the report of corrections. We have no means of knowing at this time to what extent corrections of all defects were made throughout the state, but from twenty-nine of our nurses there were reported 22,913 corrections of defects following the inspections by teachers.

Health and physical education does not end, however, with the detection and correction of defects. The child must be taught the personal application of health principles in the schoolroom. Health teaching is being done through (1) a daily inspection by the teacher for symptoms of communicable diseases, for cleanliness of person, including teeth (ten minutes daily is allowed for this work); (2) hygiene instruction provided for in the curriculum; (3) physical training.

After carefully reviewing the arguments for and against our plan for the physical inspection of school children from every point of view, and surveying the whole field of public health our conclusion is that its far-reaching benefits to the children of the present generation cannot be measured. We realize that it is not perfect, but we believe results justify our claim for it that it is for us in Virginia the most effective plan in conducting a well-rounded program that has for its purpose—to enable the greatest number of children to reach their highest development.

REPORT OF THE SLUDGE COMMITTEE

Presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 10, 1923.

THE Committee on Sludge this year brings in a progress report to outline what has been done toward solving the sewage sludge problem in the United States. As the work divides, particularly by the organizations handling the investigations, the report is so outlined.

MILWAUKEE SEWERAGE COMMISSION

Mr. T. Chalkley Hatton gives the following notes on the Milwaukee work:

The Milwaukee Sewerage Commission appointed a Fellow to the Agricultural College of the University of Wisconsin who has devoted his entire time to the use of sludge in agriculture. Intensive studies have been made of the values of activated sludge in comparison with commercial fertilizers of different mixtures. Plantings were made of corn, soy beans, Sudan grass, tobacco and other crops at the experimental farms of the University of Wisconsin, at Marshfield, Hancock, Codington, Madison, and Wauwatosa. To determine the value for grass in golf greens, tests are being made at the Blue Mound, Ozaukee, Lynx, and Tripoli Golf Clubs, and the Milwaukee Country Club and the Pine Bluff Country Club. A large number of pot cultures have also been made at the greenhouses of the University of Wisconsin.

The National Fertilizer Association has also been advised of the possible value of activated sludge. Samples have been sent various fertilizer distributors for investigation. The cooperation of the Executive Committee of the Association has been assured in handling and marketing the prepared sludge should it prove as satisfactory as appearances indicate.

SANITARY DISTRICT OF CHICAGO

The Sanitary District of Chicago has interested a number of agricultural experiment stations in growing tests. Work is under way on cotton in Mississippi, and on garden plants at the University of Illinois. In the Chicago territory sludge has been distributed to peony and rose growers, truck farmers, cabbage growers and to various individuals. The Lincoln Park, West Side, and South Park organizations are trying sludge on lawns and grass plots.

The District has operated a test plot during the growing season, planting corn, beets and beans, with various combinations of fertilizer. Some 45 plots, each 1,100 square feet in area, were planted. The land, while formerly used for truck gardening, had lain idle for over four years. The results in general have been encouraging. A record of weights is being kept, as the vegetables are picked, which will furnish a criterion of the real relative production.

In addition, the District has used sludge in seeding grass, in comparison with sheep manure.

The best price obtained during the year on the sale of carload lots was $9.00 per ton f.o.b. cars for sludge, dried and bagged.

BALTIMORE

Mr. Milton J. Ruark, Division Engineer of Sewers, gives the following notes of interest with reference to the sludge handling problem of Baltimore: During the year 1922 the total production of sludge was about 5,400 tons on a dry basis. This is the greatest rate of production in any year since 1918, when the output was somewhat greater. During the year 1922 about 5,500 tons on a dry basis was handled, a portion of this being heat dried sludge from the drying plant and the remainder air dried sludge taken by local farmers. For more than a year no charge has been made for air dried sludge. This season farmers have taken the sludge as often as it is produced by the sand beds, so that the drying plant has not been operated for several months.

At the present time, no income is being realized from the sale of sludge. The city has provided means to load the farmers' trucks from a trestle by dump cars direct from the sand beds, or by a derrick from the storage pile. As a rule the farmer arranges to handle sludge only when the city is operating one of the loading devices. Occasionally a farmer loads his own truck. The sludge is all used within a radius of about four miles, whenever possible, the farmers hauling it directly to the field, where it is spread and plowed under.

Sometimes it is placed in piles or composted with manure for spreading on the fields at a later date. The farming community served is almost entirely composed of truck farmers. The sludge is therefore used to a large extent for such plants as cabbage, spinach, potatoes, string beans, and tomatoes. It is used to some extent on corn, and to a very limited extent on grass. The amount of horse and cow manure available has decreased markedly in the last few years with the result that its cost has reached a point where farmers are seeking other materials for fertilizer. While it is evident that the farmers in the vicinity of the Baltimore plant believe the sludge is worth the handling, the city officials have desired to satisfy themselves of the real value of the sludge in agriculture. In coöperation with the Agriculture Experiment Station of Baltimore, a series of experiments have been outlined to extend over some 4 or 5 years. Nine acres have been laid out in 6 sections of 1½ acres each, each section being divided into 6 plots of ¼ acre each. The whole of each section has been treated with one of the following fertilizers: Liquid digested sludge, air dried sand bed sludge, commercial fertilizer, commercial fertilizer and dry sludge and manure. As a control, one plot has been given no treatment. One-half of each section then was treated with lime in a manner to cover half of each plot. In one plot of each section will then be planted some crop, and likewise with each of the other plots, so that in any year some crop will be growing on ground treated with all of the six fertilizers, both with and without lime. Rotation of crops will probably be introduced, but the ground will receive the same fertilizer year after year. A special experiment with alum treated sludge will also be started on other ground.

At the date of September 15, the farm was already growing late potatoes, beans, and fall cabbage. It is proposed to plant spinach and grass seed in the fall and next spring to add another crop, probably tomatoes, making a total of six different crops.

The preparation of air dried sludge for the year 1922 cost $0.666 per ton.

ROCHESTER

Mr. John F. Skinner reports that at the Irondequoit plant of the city of Rochester, N. Y., about 10,600 cubic yards were prepared for market in 1922 by air drying. This sludge was sold at an average price of $0.75 per load of 2 cubic yards to farmers, delivery being made by a tipple to the teams and auto trucks. When shoveled from storage only $0.50 was received by the city. The sludge is largely used in the top dressings of the orchards for a distance of seven miles around the plant.

HOUSTON

From Houston, Tex., Mr. J. C. McVea reports that during the calendar year 1922, four cars of sludge were sold. The buyers preferred sludge which had not been pulverized. Five tons were delivered to local truck growers and others for use near Houston. The results obtained by various gardeners and by the Houston City Park Superintendent on the municipal golf course and in the parks have been very gratifying. Growing experiments were made on a small scale with turnips, tomatoes, lettuce and radishes, in which the value of the sludge as a fertilizer was demonstrated. In particular, the turnips were vastly improved, the ones fertilized with sludge being the only ones edible, being sound and sweet, the others being dry and fibrous. The results on the turnips are given by the table on page 236.

PREPARATION OF SLUDGE

In the preparation of the sludge, development of methods and apparatus is still progressing with very encouraging results.

At Milwaukee, the tests have been concluded on sludge handling, with the conclusion that provision should be made for the use of acid and heat with the Oliver filter.

At the Des Plaines River Sewage Treatment Plant of the Sanitary District of Chicago dewatering has proceeded, using alum, or acid, with and without heat. At first only a Worthington bag platen press and a Simplex plate press were available. In August tests were begun on a novel hydraulically operated bag press, designed by Berrigan, with direct squeeze, which has the advantage of taking care of any desired thickness from ¼ inch upwards. The press cake (in moisture content from 73 to 83 per cent moisture) is dried in a rotary direct-indirect dryer. A pulverizer is required to crush the balls which occur, though not in large number.

At the Calumet Sewage Treatment Works of the Sanitary District, dewatering has proceeded, using alum or acid on the Oliver filter

PERCENTAGE INCREASE OVER UNFERTILIZED TURNIPS

No.	Weight in Ounces			Per Cent Increase			How Fertilized
	Total	Roots	Tops	Total	Roots	Tops	
1	11	3	8	0	0	0	Not fertilized
2	18	7	11	64	133	38	Blood
3	41	14	27	273	367	237	Nitrate Soda
4	63	28	35	473	832	338	Activated Sludge
5	59	31	28	436	932	250	Activated Sludge and Phosphoric Acid

TABLE 1

PRODUCTION DATA AND ANALYSIS OF SLUDGE, REPORTED FOR 1922

City	Baltimore	Rochester	Chicago	Houston
Plant	Hydrolytic	Imhoff	Activated	Activated
Production in 1922; net tons, dry weight	5,421	6,440	*400	**70
Air dried — cu. yd.		10,600		
Analysis on dry basis		Per Cent		
Nitrogen				
Average	2.45	2.00	5.0	4.6
Maximum		2.17	5.6	
Minimum		1.93	4.3	
Phosphoric Acid	0.52	0.8	2 to 4	1.9

* Approximate amount on 12 months, 1922-23.
** Produced for experimental use and sold as fertilizer, estimated production would be 1720 tons, if prepared.

installed. This filter is the largest size built, the drum being 11 feet 6 inches diameter with a face 14 feet wide. Space has been left in the house for a Basco-ter-Meer centrifuge. A dryer similar to the one at the Des Plaines River Sewage Treatment Works operates on the sludge cake intermittently.

At the testing station, operated jointly by the Sanitary District and the Corn Products Refining Company at Argo, tests have been run on plate filters and a single wheel American rotary filter. Alum has proved more successful as a coagulent than acid.

At Houston, the cost of preparing the sludge has not yet developed to a point where definite costs can be given. Several methods have been tried. At present the use of sulphur dioxide gas is being tried to prepare the sludge for pressing. There has been no complaint of odor from sludge handling or the preparation of the sludge.

The nitrogen recovery in activated sludge at the various points of operation is as follows:

ACTIVATED SLUDGE

RECOVERY OF NITROGEN AND PHOSPHORIC ACID NITROGEN AS N; PHOSPHORIC ACID AS P_2O_5
PER CENT DRY BASIS.

Location	N	P_2O_5
Sanitary District of Chicago		
Argo	7 to 8	6 to 7
Tannery	3.0	
Packingtown	4.2	2.7
Des Plaines R. S. T. W.	4.5 to 5.5	2 to 4
Calumet S. T. W.	4.2 to 4.4	
Houston	4.6	1.9
Milwaukee	6.0	2.3

By the alkaline permanganate method the total available ammonia in the Milwaukee sludge is 4.61 per cent, 63 per cent of the total ammonia.

LANGDON PEARSE, *Chairman.*
T. CHALKLEY HATTON.
C. H. HURD.
EARLE B. PHELPS.
W. L. STEVENSON.

MOTION PICTURES AND PUBLIC HEALTH

One of the most successful and profitable occasions at the annual meeting in Boston was the Motion Picture Luncheon of the Section on Health Education and Publicity. The discussion brought out at this meeting has been abstracted below by Mr. James A. Tobey, of the National Health Council, who presided.

Mr. B. R. Rickards (New York State Department of Health): We have about thirty moving pictures which are in constant use and of these we have two or three copies each. It is seldom we have more than a few reels back in at one time. We distribute in three ways: First, by natural distribution. People who know we have those films write in and ask us for them and the films are sent free of charge to anybody. Second, about a year and a half ago we started distribution through regular motion picture houses. At first it looked as if that would not be a feasible method, but it has turned out exceedingly well. This method has been worked very largely through the health officers, as we have asked dependable health officers to interview their local film houses to see if they could use the pictures. The third method is by the use of our healthmobile, the truck that goes into the rural districts when the roads are open. There we force distribution, so to speak, by carrying the film into the most remote sections of the state.

Miss A. K. Behr (National Organization for Public Health Nursing): As Mr. Tobey has said, the valuation of a good health motion picture is made on three basic principles: 1. Does it actually succeed in teaching a lesson? 2. Is it really scientifically accurate? 3. Is the motion picture technically correct?

In considering pedagogic value, the Health Films Committee of the National Health Council employs rules that all health educators should follow. They ask: Did the lesson develop logically? Was it told in the right way, in understandable language? Scientific accuracy is also considered in connection with pedagogic value. I think we can say the recent picture, "Working for Dear Life," employs one element of sound pedagogy very well, that of repetition with change. In motion pictures, good photography, good lighting and good lettering are necessary. If a diagram of the heart appears it must look like the heart, and if it is in animation it must not look jerky like a pumping system out of order.

Mr. Edward Stuart: The question of distribution is quite simple. The Rockefeller Foundation recently made a film on malaria and they have placed four copies of this film with a nontheatrical company which has deposited these four copies in their exchanges in New York, Chicago, Atlanta and San Francisco, where the films may be rented for $1.50 a day per reel of showing. Any national organization can do the same thing if they pay for their own negatives, have the negative made and are willing to supply positive prints to exchanges over the country. They may then have them rented out at a nominal charge. If they want to get their print cost back, it is necessary to put on a higher rental rate.

With regard to production, an organization wishing to have a film made should consult with the Health Films Committee of the National Health Council because this is a body of people familiar with health films in various angles who can contribute greatly to insuring the production of a good film. Unless an organization has someone who knows both sides, how films are made, and the health side, it is necessary to go to a commercial company to have the film made, and then have it supervised by someone who knows the health end of it and something of the film technique. As time goes on there are more and more people developing the knowledge of both sides.

Dr. H. E. Kleinschmidt (Toledo Public Health Association): The limited experience which we have had in Toledo, a city of about a quarter of a million, probably will be duplicated all over the country, and may throw some light on production and distribution. In the first place, we attempted to interest some of our people in motion pictures, which is practically an untilled field in Toledo. After we had them primed and had assembled the audience, the question arose as to what picture we should show as a good example. We scanned the field and found only three that were reasonably good. That is all we could find, and much to our surprise, one of those pictures that I thought was very good, turned

out to have no appeal at all to those particular people. As national health workers, making films, we forget the needs of the local communities. I know there are three hundred motion pictures on health on record, yet of those three hundred pictures I doubt if there are half a dozen that would apply to our particular situation in Toledo.

The only practical means of using motion pictures in a city or a relatively small community is for an organization to own the picture, as it is very inconvenient to send on to New York or to a state capital for a motion picture. The chances are that it won't come on the assigned date. Also, frequently it happens that an opportunity crops up within a day or two and a picture is not at hand, so the only practical way is to own the picture. That means a good deal of expenditure of money. We have adopted the policy of using standard gauge, noninflammable film. Most of the subjects we would like to have we can't get on that kind of material. It occurs to me that there might be some system of exchange worked out by the Health Films Committee of the Council.

Professor C. E. Turner (Massachusetts Institute of Technology): Dr. Kleinschmidt touched on a problem which is vital in the development of the motion picture situation; that is, as to what kind of films we are going to use. A great many states are almost prohibited from using films because of the fire laws, and if we could put this country on the basis of using cellulose acetate films only, we should be all right. I believe we are going to come to that within a few years. France has practically decided to do so already. They have decided to do so in the district of Paris and have postponed for a few months setting into action that regulation. If we could get national legislation requiring all motion pictures to be made on safety stuff or if we could get, as we did in Massachusetts last year, a special law which makes it possible now in this state for the first time to use standard width safety films without a booth, which is an expensive operating cost, that would help solve our problem, because it would open the market wide and enable us to get more and better films, and help us pay for the films we own.

Dr. R. K. Flannagan (Virginia State Department of Health): We have the criticism to make that certain films that are available do not seem to meet our conditions in Virginia. It is a rural state and most of the moving pictures that are available are from the city angle, utterly out of the question from an educational point of view, in the rural centers where they have no background that would enable people to understand them, so we have found it necessary, whether scientifically or not, to make our own films.

A young man down there in Richmond who has had considerable experience in moving picture work, has taken a great deal of interest in going about our rural health centers, our health units, and has taken pictures for us, before and after. We have four counties in Virginia using moving pictures which deal with local conditions, and that film circulates in that community. We have a Ford outfit with a motor on it that furnishes the power and light, and we carry it to remote school houses and in that way we get the message before the public.

Dr. W. F. Snow (American Social Hygiene Association): I have gone only far enough along this road to recognize a lot of the difficulties. I don't know how to solve them. I think the distribution question is the one that is perhaps most important, but it ties back into all these others. It would seem to me we are more likely to have persons who are receptive to suggestions with regard to the manufacture of films and the planning of adequate scenarios, than we are persons who will undertake the heavy routine burden of distributing effectively the films once they are made. That has been the experience of most of the national organizations I know of who have made films.

One or two organizations have attempted to make skeleton pictures. There is just one idea I would like to bring up in this connection. That is, a picture which has a story, but which is planned in such a way that either the title or possibly in a few instances certain limited footage of local pictures might be incorporated to fit each state. To use a single illustration, Dr. Welch of Alabama liked the film which was called "The Health Twins at Work," an animated diagram film, which has many statistics. Dr. Welch wanted it, but wanted the Alabama statistics included. It cost quite a good deal to prepare those statistics, but made the film very much more worth while to the Alabama State Health Department. I have studied that situation pretty

closely, that film and that problem, and I think that this year a revision of that film can be made after conference with the health officers, so that with very little expense it can be adapted to one state or to a group of states with the titles so arranged that specific data on each state can be put in at very little expense. Then if that can be put into the hands of the state health officer, he still has the problem of how he is going to distribute it. Dr. Turner made one of the most important suggestions that we ought to try to get non-inflammable films if we can do that. The state health officers have something adapted to their own states, and by having the newspapers handle the distribution on it, we will have one of the incentives for the constant use of these figures.

Dr. Galdston (New York Tuberculosis Association): My experience is like Dr. Snow's as being an evidence of the difficulties instead of solutions. We had difficulty in getting scenarios. We had difficulty in getting the scenarios executed. We produced, for example, "The Kid Comes Through," which is a popular film, and all right and simple. Then we took the same man and asked him to produce a more or less scientific thing, a film on tuberculosis and we found that he did the craziest things.

As far as the distribution of films is concerned, there is another phase of distribution which has not been touched, that is, the equipment. An organization may have two or three films such as we have. They may represent investments of three, five or six thousand dollars, but in addition, there is the investment in the motion picture machine, and you have to have licensed and competent operators because the emergencies that arise in the various places you show the pictures are innumerable. You have to have expert mechanics to make arrangements for the showing. We have had the voltages sometimes different from what we expected or some amateur mechanic blew out the fuses and nobody knew where they were.

In New York City we have fourteen or fifteen organizations. Most of them ought to use films but do not. Should every one of those organizations have a motion picture machine or two? Should they have their own operator and so on? We have been fortunate in having a health-mobile and licensed operator and we can carry these films around and make a proper arrangement. But many organizations in New York haven't these arrangements. That is another problem we ought to take up and try to solve.

Another point is this: It is all right to say the film ought to be scientific and correct from the point of view of the pictures. A large number of the films predominate one way or the other; they are exceedingly like the vanishing cream, where the cleverness absolutely overshadows any health lesson, or so healthlessony they put you to sleep, and that is an exceedingly important point.

The thing that has impressed me is that this proverbial cleverness of the commercial houses hasn't manifested itself in the motion picture film business. We haven't seen an adequate number of producers awake to the health situation give us the expert advice which we want. We desired to produce a film on industrial phases of tuberculosis, and asked three of the great scenario people to give us scenarios. They were as bad as three scenarios could be.

Dr. Merrill (Maine): As I have been listening here, I have been wondering this point: Would it not be possible to have picture films on health subjects so arranged that they should not be necessarily announced and advertised as health films? Let them be advertised and so constructed that they have general appeal on other grounds than health, but have it an essential part of the film that it depicts certain phases of health work. It would seem to me that it would appeal to the public and increase your audience if films could be produced in that form. If they are produced and advertised as health films, only those interested in health work go to see them.

Dr. W. F. King (State Health Officer, Indiana): I wish it were possible to work out some plan whereby we could get the benefit of the educational value of the films at expenses within that of the average state health department. No one yet has mentioned in the discussion here the fact of using a projectoscope instead of a big moving picture machine, which doesn't have to be enclosed in a booth and be squared with all the ordinances and fire prevention laws. We use a projectoscope, and carry it in our hand and take it in exhibit cars. We have two exhibit cars that have been in operation in our city, one for child hygiene and one for tuberculosis. They

drive up to the school house and turn on the projectoscope and start the moving picture.

There seems to be, as far as we are concerned, no necessity for raising the question of noninflammable films or compliance with fire regulations, and ordinances of the city. It seems from the discussion here that all films are quite unsatisfactory and no good. We have some we think are good. At least we get a good reaction from them, and that is about the best method of valuation we have, how the public take them.

Mr. P. S. Platt: I should like to have Dr. Merrill's question answered.

Chairman Tobey: Dr. Merrill's question was: Why have films which are out and out health films? Let them give the principles of public health but why label them as such?

I want to take the opportunity to express my opinion that the best health film I have seen was Harold Lloyd in "Dr. Jack." That was not intended as a health picture, but as a comedy vehicle for Harold. There were things in that film which struck me as the best kind of health propaganda. When the doctor came into the darkened room, the first thing he did was to throw up the curtains and let in a flood of sunlight come in; he threw up the window and let fresh air in. That little incident is public health in a film, and that is Dr. Merrill's point. Why shouldn't health films be made, disguising the fact that they are such? Isn't there really a difficulty in the fact that the public health film is trying to be made by public health experts who, instead of projecting themselves into the seats of those who are seeing the picture, are looking at the function of the picture as scientific accuracy, something about which a negligibly small proportion of the spectators are concerned. Aren't we trying to have too much perfection in technique, and too little appeal to the people? Isn't there a distinction to be made between the type of film we want to use in the public school and the general type in which we are trying to get public health into the minds of the lay adult?

Mr. Ray H. Everett: Where can your public health agencies attempt to do the type of dramatic picture such as Douglas Fairbanks in Robin Hood or Harold Lloyd in several of his pictures? You can get them across in the motion picture houses, but they cost hundreds of thousands of dollars, whereas the budget of the national, local and state organizations attempting to do this kind of public health education is limited to a few thousands of dollars. There is one of your answers as to why it is difficult, if not impossible, to have a sufficient repertoire of public health pictures and to get them distributed through the ordinary routine motion picture channels.

Dr. Merrill: The thought going vaguely through my mind was this: Through this films committee, it might eventually be possible that the commercial houses and producers, might be interested to incorporate into some of their regular line of pictures some of these health points. It might be possible that the Rockefeller Foundation or the American Medical Association, the National Health Council, all the big Associations, looking for help might incorporate into each year's budget an item to help finance such a proposition.

There was also a thought going through my mind, that through this Health Films Committee the big companies and big producers might be induced to incorporate health points that would not detract from the legitimate mass of their productions, and still nevertheless, every film produced in this country might be carrying its health message.

Mr. H. H. Moore (U. S. Public Health Service): We have had one of our men out in the field for about twelve or fifteen months with the series of twelve reels, "The Science of Life." He has been dealing not so much with high schools themselves as with normal schools and schools of education which are turning out our high school teachers of the future. There have been minor criticisms, of course, of that series of films. I think the reception which they have had has been very encouraging and so much so that we are sending them out again this coming year to certain sections of the country where he hasn't been before.

The U. S. Public Health Service, of course, is greatly interested in this whole problem of public health education through motion pictures. We showed our interest by making available a man for a period of several months to the Health Films Committee. The whole situation has impressed me as being very chaotic in respect to standardization, distribution, state laws, and many other aspects of the whole situation. The heartening aspect of the situation is that your Committee is attacking the problem as critically as you are, and that

you are persevering in the work on the matter. The work of the Committee has the very best wishes of the Public Health Service.

I hope that you will stress the importance of investigation. As I have been delving into the problem occasionally during the past two or three years, I have been impressed by my own lack of knowledge regarding the psychology and pedagogical principles involved in public health education through motion pictures, and even though it takes a good many years in getting far in the working out of such principles, I think we must have that long period of slow work in formulating some such principles in order to act as a scientific basis for production in future years.

Mr. B. R. Rickards: One of the principal things with which we have to contend is absurd laws in regard to the use of booths. In the present stage of the game where you have portable projectors made out of steel, as light as a suitcase that can be handled easily and with noninflammable film it is perfectly ridiculous to have to enclose such a projector in a booth. It absolutely kills the distribution if you have to conform to that law because to show one picture for twenty minutes and have to put up a booth at a cost of twenty or twenty-five dollars for transportation and labor is out of the question.

The only thing to do is to do what has been done, as I understand today, in Massachusetts and also last year in New York, and that is to get a bill passed which will permit the showing of moving pictures without a booth by the use of noninflammable film standard size in a projector which is properly protected either by being made of steel or in some other way.

The other point I want to bring up is the matter of fillers. You can get the health story by making short films which the moving picture theaters will readily take to run in between other films. A third thing which helps a good deal is to have a camera of your own so that you can take pictures that are on market, make your own texts and introduce local interest if you want to.

Chairman Tobey: The Health Films Committee of the National Health Council (370 Seventh Avenue, New York), will endeavor to be of any service possible to anybody who wants service. In other words, if anybody contemplates making a film and would like to have criticisms on the scenario or suggestions as to where or how it could be made, it will be gladly given within the limits of information and if anybody wishes to submit such a film for review by the Committee, or for suggestive criticism, that will be done. This Committee is comprised of members all of whom have other definite health education work to do. It is a voluntary committee made up of representatives from members of the National Health Council, all of whom are very busy and can only give limited time to this Committee. If we could have a full-time bureau which had nothing to do but review films, work out methods of distribution and demand and produce pictures, we would make a thousand per cent greater progress. I hope the time will come and the facilities will be in sight whereby such a bureau can be established.

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MUNICIPAL HEALTH DEPARTMENT PRACTICE

We have already called attention to the report of the Committee on Municipal Health Department Practice presented at the Boston meeting. The health departments and health practices of 83 cities of over 100,000 inhabitants were carefully studied. The results were collated, and each division found in these departments has been carefully analyzed by specialists. The value of uniformity in health administration, as far as possible, has frequently been emphasized. It goes without saying that each city has its own individual problems. What is of great importance to a city in the far South may be of no practical importance to a city in Canada, or in California, for example, nevertheless certain fundamental principles must underlie all health department practice and the more nearly we approach uniformity, in laws and in practice, the more common ground will there be for health officers and the more valuable will be their consultations with one another.

While the report of the committee as published by the Public Health Service in Bulletin 136 is available to health officers everywhere, it has been keenly felt that the full advantage of the time, labor and money spent upon this investigation so far would not be realized unless its work was continued and extended. Valuable as is the printed page for reference, it is evident that personal consultation will be of still more value. This has been realized by our Public Health Service, which has established an office of Administrative Health Practice, to the direction of which Surgeon Paul Preble, who has had a large experience in health survey work which especially fits him for this task, has been appointed. The records of

the committee have been made available for the use of this office, and through it are available to health officers, physicians and sanitarians, not only of the countries which are constituent members of the American Public Health Association but also to those of the entire world.

Further than this, it was realized that a field officer could greatly aid in this work, and Dr. W. S. Rankin, State Health Officer of North Carolina, was given a year's leave of absence, and entered the service of our Association. His services are open to the members of our Association everywhere in aiding them through correspondence, personal visits, special surveys and in any other way which will build up the sentiment of their individual communities for better public health work.

We believe that the work of this committee and the publication of its report constitute one of the most important pieces of work done by our Association for some time. It seems needless to add that the utilization of this work through the agencies which have been mentioned is of equal or of even greater importance. The health officer who simply knows his own problems and confines himself entirely to his local conditions, however well he may do this, is not measuring up to his opportunities. In no branch of life are we our "brother's keepers" more truly than in public health work. Participating in the diseases of foreign countries is one of the penalties we must pay for our increasing facilities in trade and intercourse. In these days of rapid transit, with rapidity constantly on the increase, and with the desire to travel constantly growing in every part of the world, one cannot live to himself, and our public health ideals will not be attained until we have concerted action with abundant financial support throughout the length and breadth of our own continent and also throughout the world.

THE HEALTH OFFICER

A physician and sanitarian, one of those enthusiasts who has made a noteworthy success of public health administration in a small community, has recently described [1] what in his judgment are the chief duties of a Health Officer. First of all he must be an organizer, capable not only of directing the personnel and routine of his own office, but equally competent to organize his community in such a way as to obtain a maximum of enthusiastic support on the part of its citizens. To bring this about the Health Officer must be a diplomat. Tact and perseverance are necessary qualities for the harmonizing of community interests. The Health Officer must be an educator, since within reasonable limits the death rate is but an expression of the degree of intelligence of the populace. How else will citizens become educated in matters of public health and hygiene, except through the leadership and teachings of the Health Officer? Experience has shown that those communities which can boast of a gradual reduction of their general death rate have corresponding reductions in the infantile death rate, and likewise in the rates of other controllable diseases. The intelligent application of hygienic habits manifests itself at all ages and in all classes.

One of our ablest administrators, Chapin,[2] has never missed an opportunity of

1. David Littlejohn, City Manager Magazine, January, 1924.
2. Chas. V. Chapin, J. A. M. A., 76:215 (Jan. 22), 1921.

tracing the development of public health work from that stage of sanitation where man's environment was considered a most important factor in determining health, through that period of rigid quarantine enforcement under the strong arm of police authority, to the modern conception of public health built on a foundation of education supported by the application of scientific discoveries. Surely the successful Health Officer must prepare himself to be a community educator, must be competent to convince others that public health is a good financial investment for the community, and one which pays huge dividends. To do these things a public health administrator must, of necessity, be a leader competent not only to evaluate intelligently his own problems, but likewise capable of balancing his needs against the other demands of the city administration. He must never lose sight of the fact that he is by no means the entire city government, but on the other hand let him not neglect a single opportunity to prove that health is not only an individual, but a community asset, and that in order to produce results he must be supported with a reasonable budget.

The writer to whom we have referred further describes the Health Officer as a publicity expert, one competent to inform the people of his work, such knowledge inspiring enthusiasm and support. In summary the Health Officer must be an able executive and good administrator.

The first impression may be that the Health Officer must be a super-man in order to possess all the characteristics which have been described. Such, however, is not the case. He must be a man of good training, sound judgment, able to take the initiative, and above all one who is sincere and who appreciates his own limitations. The Surgeon General of the United States Public Health Service has taken steps to insure for the future a larger number of trained sanitarians. With the cooperation of the Committee on the Education of Sanitarians, arrangements have been made for the establishment of Public Health Institutes to be held next summer in connection with four recognized university centers. The aim of these institutes will be to provide intensive training for all professional groups engaged in public health work, and to make available to general practitioners instruction which will enable them to participate more fully in preventive work.

Elsewhere in this issue [3] the American Public Health Association announces through its Committee on Municipal Health Department Practice the establishment of an advisory service under the capable leadership of Dr. W. S. Rankin, State Health Officer of North Carolina. It is hoped that this is but the beginning of a more extensive service that the Association will be able to offer its members and fellows. The interchange of ideas is beneficial to all, and through the medium of the newly created bureau there will become available to the readers of this JOURNAL a vast storehouse of information available at all times, and the energetic Health Officer need no longer wait until the annual meeting to present his problems for discussion and to request of his fellow members of the Association information concerning their practices. Furthermore, it is the desire of the editor of the JOURNAL that our readers make more use of the Health Officers' Exchange Section. Your problems will be referred to the Committee on Municipal Health Department Practice or to other well known referees, and the answer will be published along with the queries. If the problem is one in which you are sufficiently interested to seek information you may rest assured that there are scores of others who read this JOURNAL who will benefit by the same discussion.

3. Page 182.

SIGNIFICANCE OF STANDARDS

The establishment of standards of practice in public health work is without question the most fundamental and important task in public health to-day. A generally approved and accepted set of standards in terms of comparative work performed as between cities would mean a shifting in the major interests of city authorities, chambers of commerce and the electorate from persons concerned to work accomplished. As long as personal considerations are primary in selecting and retaining officers, the office is political. As soon as professional considerations become primary in selecting and retaining officers, the office will be lifted from an uncertain political level to a secure professional foundation.

An illustration will serve to make clear this rather dogmatic statement of a simple principle of far reaching significance for all who are interested or engaged in public health work. In a recent election there was a complete turnover in a county where majorities are usually small and partisan political feeling intense. The full time health officer of that county belonged to the party that lost control. It was generally understood that he would be replaced by an officer of the same political faith as the new party in power. Six weeks before the election of the health officer was to take place, the State Health Officer found opportunity to call the attention of the authorities to a standard of health practice which had been in effect in the state for twelve months preceding the election; he directed the attention of the authorities of the county to a detailed comparative statement of the work of their health officer with that of other counties; he pointed out to them that they could assume responsibility for replacing the health officer but that they should not lose sight of a concurrent responsibility of a more serious character, namely, that of also replacing his record of achievement; it was pointed out further that for the past year the county had made a record only third from the top of the list in a group of twenty-six counties with similar programs; it was suggested that someone might ask for a publication by the State Board of Health of the record of the new man alongside of that of the health officer then in charge of the work, and that, unless the record were replaced along with the officer, the county authorities might be seriously embarrassed. Before the county authorities got this viewpoint of a double responsibility—that of replacing not only the man in office but also the record of his work—it was generally conceded that the health officer would be replaced. After attention was shifted from man to work, the interest of the people and the authorities became centered around the idea of maintaining a standard of achievement and the same health officer was reappointed. A political viewpoint changed to a professional one. The health department passed out of politics and was established on a professional basis. This important change in attitude was the effect of standardization.

The transfer of health departments from a political to a professional basis of organization will solve largely the problem of inadequate provisions in the form of both appropriations and personnel, and will make possible the success of schools of public health that at present are finding great difficulty in inducing sufficient numbers of young men to take training for work which is uncertain in permanency of employment and in remuneration.

OUR DUTY TO THE PUBLIC

The season has arrived when state legislatures are called in session. Inevitably bills will be introduced to legalize medical cults, and admit to medical practice, on one plea or another, men and women deficient in education and training.

We believe that it is the duty of educated physicians and sanitarians to take an active part in opposing the passage of such laws, both in person and through their organizations. We have no fear that scientific medicine is going to be hurt by these cults, but the glory of medicine and medical men has always been their service to humanity, and our duty to the public in protecting the ignorant and the innocent is clear. The contests before legislative committees are often discouraging, but they have an educational value which must not be forgotten, even when not successful.

The education and tradition of regular physicians is against advertisement and against the type of effort we now recommend. "The Devil must be fought with fire," even if we must sacrific some of the dignity and conservatism which we have cultivated in the past. Raising the standards of education and wiping medical schools of low standard out of existence was a fine and constructive work, but has it not tended to the development of cults through which those who desire short-cuts to the license to practice may be obtained?

There are several widespread misapprehensions which we should be active in combatting. The public should not be allowed to believe that there is any reason for several schools of medicine, nor should the use or nonuse of drugs be considered as separating one school of medicine from another. It is a notorious fact that the so-called drugless forms of healing have worked their way through our state legislatures by an appeal based on the statement that they did not give drugs. Even if this were true, it does not relieve them of the responsibility of knowing anatomy and physiology, diagnosis and those branches of medicine which must be common to all educated physicians. In other words, the human body, which they are professing to care for, must be as thoroughly understood by one school as by another. Contagious diseases spread among Christian Scientists just as readily as they do among those who have not received this wonderful enlightenment. Whether diphtheria and scarlet fever are regarded as errors of the mortal mind or not, they unfortunately spread just the same.

Scientific doctors should take a firm stand against being called allopaths. There is no such school known. The term was applied to regular medicine in an attempt to show that some dogma was followed by regular practitioners, and as long as this term is recognized and allowed by regular physicians, the non-professional man will be misled by it into believing that the difference in schools of medicine is one which is justifiable, and that regular physicians are merely trying to put their school over to the disadvantage of others.

Perhaps the one thing which is most dangerous is the formation of separate examining boards for the different cults. This has been abundantly exemplified in Connecticut where the eclectic board has granted licenses to men who have never studied eclectic medicine nor even attended an eclectic school. The formation of separate boards is a typical example of the blind leading the blind. We should present a united front against the efforts of the various cults to break down scientific medicine, and with rational arguments and facts show that we are protecting the public rather than the medical profession. However, there must be cultivated in the regular profession an esprit de corps, and every educated physician should be ready at all times to defend the honor of his profession,

which is second in usefulness to none. The great French philosopher Descartes said, "If ever the human race is raised to its highest practicable level intellectually, morally and physically, the science of medicine will perform the service."

These thoughts have been burned into the consciousness of the writer by tragic occurrences which have taken place recently, as it were before his eyes. A girl upon whom a criminal abortion had been done, and who developed a septic peritonitis, called an osteopath who did not recognize her condition, gave her adjustments and assured her she was getting better. A second osteopath was called, who likewise did not recognize the condition, and the adjustments were continued, until finally a regular physician was called in but too late to save the girl. The wife of a chiropractor developed diphtheria. She was treated by her husband, who, in spite of her pleas for a physician, continued to give adjustments. When dying her children were allowed to visit her. Two regular physicians were finally called in, but the woman was already cyanotic and the inevitable death occurred. Only a few days later one of the children, a boy seventeen years old, also developed diphtheria. He also was treated by the head of the family, who called to his aid a chiropractor from St. Louis and another from Kansas City. The boy rapidly grew worse and when in a dying condition a physician was called in, but too late to save the boy.

One would indeed have to be hardened not to pity these victims sacrificed to the ignorance of cults. These three persons met their death through the neglect of measures which are well known and have proved successful. Osteopathy is legally recognized in the state in which these things occurred, but chiropractic is not, yet the state of the public mind is such that nothing can be done to punish chiropractors who constantly violate the law and jeopardize the health of the community. Is it not the duty of the regular profession to enter on a campaign of education? Clergymen, teachers, university professors, business men of high standing, all show a tremendous ignorance of the body and its functions, and many of them are found among the clientele of practitioners who follow even the most preposterous fads.

THE COMMON COMMUNION CUP

We have already spoken of the Common Communion Cup as used in some of our churches.[1] In the English speaking countries the Church of England and the Episcopal Church seem to have adhered rigidly to the common cup, other churches using the individual glass to a large extent.

The whole matter has been recently reviewed.[2] History shows that the common cup was probably not used even at the institution of the Lord's Supper. Judging from the customs of the people at that time, and from the words of the Bible, the methods as used in the Episcopal Church are not those employed at the beginning. The earliest picture representing the Lord's Supper shows that each partaker had a separate cup before him. Many of the present authorities agree that the individual cup conforms more closely with the original method than does the common cup.

We are interested in this question solely from the public health standpoint. The only reasons which can be given for the use of the common cup are custom and tradition, yet it has been clearly shown that both of these have been violated in the past, and continue to be violated at the present time. The Roman Catholic

1. A. J. P. H., November, 1922.
2. The Hygiene of the Communion Cup, by Dr. W. H. Read, Sydney.

Church has solved the problem by keeping the chalice away from the laity, the priest only partaking of it.

The use of the common cup violates the most fundamental principles of hygiene. It is revolting to many people on the grounds of simple cleanliness and keeps many church members from partaking of communion. There is a considerable amount of testimony by clergymen to the effect that crumbs of bread are frequently found adhering to the lip of the cup, and that not unfrequently saliva is seen running down into the wine. As far as bacteriologists and sanitarians are concerned there seems to be practical unanimity in the opinion that the common communion cup should be abolished, and that churches should use the individual glass. This has been generally recognized by most churches, but the Church of England, and the Episcopal Church in America, have persistently clung to the old methods. The Rubrics require its use and a change in these would be necessary before the clergy could abandon its use.

It seems perfectly clear that our influence should be directed to the discontinuance of the use of the common cup. Just why the two churches mentioned have been so slow in adopting this reform dictated by hygiene, is hard to say, but we trust the time is not far distant when they will follow the lead so wisely given by other churches.

A PERIL TO PUBLIC HEALTH

The newspapers recently devoted a great deal of space and of editorial comment to the diploma mills that have been shown to be doing a thriving business in various parts of the country. These sinister institutions have been converting a host of uneducated, conscienceless and greedy clerks, carpenters and laborers of all kinds into "doctors," without subjecting them to inconvenience and loss of time for study and adequate preparation. Ignorant men from all walks of life are being armed with bogus diplomas and helped to establish themselves in medical practice in ways that are devious and criminal. So long as new disclosures were being made of the extent of this evil in various states, the newspapers accorded a prominent place to this item of news, and aroused the public to a momentary interest in the grave peril that this constitutes to many persons throughout the country. Incidentally, the light of publicity brought into focus for a moment the enormous number of equally ignorant and greedy exploiters of the public who have assumed the title of "doctor" without legal sanction and who are practicing medicine as representatives of the various mushroom cults and so-called "new schools of medicine." Unfortunately, however, interest in this serious peril to the public welfare is on the wane. Newspapers do not continue to feature an evil unless new and startling revelations of the murder of trusting and innocent patients can be brought to light from day to day.

No group of public servants in this country are in as favorable a position as the public health officers to offer dispassionate and disinterested testimony as to the need of keeping the ranks of medical practitioners free from invasion by mobs of irregular practitioners. The many ignorant and unscrupulous graduates of diploma factories and of the so-called "new schools of medicine" which have been established by various types of masseurs, bone and spine manipulators and others who are masquerading under high-sounding titles, have shown diabolic ingenuity in making detours to avoid real medical study and in finding the shortest road to the purses of the credulous and the gullible.

As public health officers, we are not primarily concerned with preventing these sources of illicit profit. That is the business of law makers and of district attorneys. But every alert health officer of experience undoubtedly knows at first hand of the death of persons treated by irregular practitioners. These victims could without doubt have been saved, if regular physicians, who are competent to diagnose and to apply appropriate methods of medical and surgical treatment, had been called in time. Health officers in every large community must know of many such cases especially as concerns the communicable diseases. There is a very real danger that this may some day cause an outbreak that is likely to assume epidemic proportions, because there are many cases in which these ignorant irregular practitioners miss the diagnosis, and also because they do not report their cases,—even if perchance they guess the diagnosis,—because in most states they dare not acknowledge that they are practicing medicine.

The American Public Health Association, speaking as it does for thousands of health officers throughout the country, cannot allow general interest in this peril to public welfare to diminish. Ways must be devised to keep the public aroused to the significance of this danger by appropriate methods of publicity. To cite but two examples of this evil we would call attention to the fact that in one of the larger cities two deaths recently occurred from diphtheria in cases that were treated by chiropractors who employed those manipulative methods which are the sole stock in trade of this group of masseurs. Antitoxin was of course wholly ignored in these cases, despite the fact that its efficacy as a cure was demonstrated several decades ago. Similarly, in the State of Connecticut, Dr. Stanley E. Osborne, State Health Commissioner, in association with others, has brought a number of instances to light, in which irregular practitioners have shown an equally brutal disregard of the value of human life.

A remedy has been suggested to check the growth and multiplication of irregular schools which graduate healers of all types. The Medical Practice Acts of our various states,—and this may possibly be applicable to our neighboring sister countries,—are so framed as to apply only to the graduates of the regular schools of medicine. The time has arrived when we should ignore all differences of therapeutic methods advocated by the various schools, and should demand that every person who attempts, directly or indirectly, to practice the healing art, should prove by rigid and uniform tests not only the possession of an adequate preliminary academic education, but of a thorough training in anatomy, bacteriology, normal and pathological physiology, pathology, and of clinical and laboratory methods of diagnosis. A knowledge of these subjects should be required of all graduates, regardless as to whether they will elect to heal by psychic, medicinal, physical, manipulative, or any other methods or combination of methods. Eliminating examinations in materia medica, and intensifying the rigor of our examinations with respect to a knowledge of the fundamental medical sciences would seem to offer a solution of our present difficulties. We would then be able to ignore new cults and new schools which claim distinction only on the basis of a variation in the current methods of treatment. Let any man or woman complete an adequate course of study and give evidence of a knowledge of the fundamental branches of medical science, and they may then treat disease in any manner that their conscience and judgment may dictate. The knowledge that a patient may secure legal redress for any failure on the part of a practitioner to use authoritative and acknowledged methods of healing would be a sufficiently practical safeguard of the public against malpractice or neglect.

ASSOCIATION NEWS

LIST OF MEMBERS

Proposed for Election to the A. P. H. A. December 30 to January 26, inclusive.

Names of New Members are set in Light Face Type.
Names of Sponsors are set in **Bold Face Type.**

CANADA

J. W. S. McCullough, M.D., Toronto, Ontario.
Andrew Rutherford Riddell, B.A., M.B., 72 St. Clair Ave. West, Toronto, Investigator, Occupational Diseases, Provincial Board of Health.

CONNECTICUT

P. E. Bransfield, Portland, Conn.
Marion E. Woodward, B.A., P. O. Drawer 1104, New Haven, Conn. Assistant Chemist, Laboratory, Connecticut State Dept. of Health.

ILLINOIS

Fred O. Tonney, M.D., Chicago, Ill.
Frank E. Challis, Wilkens-Anderson Company, 217-223 N. Desplaines St., Chicago, Ill.

MAINE

Homer N. Calver, New York, N. Y.
Harry D. McNeil, M.D., City Hall, Bangor, Me. Health Officer.

MICHIGAN

Homer N. Calver, New York, N. Y.
Harry J. Defnet, M.D., Escanaba, Mich. Health Commissioner.

Norma K. Burrell, Perth Amboy, N. J.
Alice Andrus, South Haven, Mich. Analyst, Board of Public Works.

MASSACHUSETTS

Murray P. Horwood, Cambridge, Mass.
Philip Lawrence Riley, S.B., 11 Springfield St., Belmont, Mass. Assistant, Dept. Biology and Public Health, M. I. T.

Francis X. Mahoney, M.D., Boston, Mass.
Evangeline W. Young, M.D., 20 Charlesgate West, Boston, Mass.

Prof. C. E. Turner, Cambridge, Mass.
James Mace Andress, Ph.D., 67 Clyde St., Newtonville, Mass. Lecturer on Health Education, Boston Univ. and Boston School of Physical Education.

Homer N. Calver, New York, N. Y.
Rosella A. Wells, 176 Oliver St., Fall River, Mass. Child Welfare Nurse, Providence Institute.

MINNESOTA

A. J. Chesley, M.D., St. Paul, Minn.
Ruth E. Boynton, M.D., State Board of Health, Minneapolis, Minn. Director, Division of Child Hygiene.
Ruth Houlton, B.A., R.N., 116 Groveland Ave., Minneapolis, Minn. Superintendent, Public Health Nursing, Child Hygiene Division, State Board of Health.

Edward W. Foley, M.D., Duluth, Minn.
A. T. Laird, M.D., Nopeming Sanatorium, Nopeming, Minn. Superintendent and Secretary, St. Louis County Sanatorium Commission.

MISSOURI

C. P. Fryer, M.D., Dr.P.H., Maryville, Mo.
E. M. Lucke, M.D., Albany, Mo. Health Officer of Gentry County.

Olive A. Chapman, St. Louis, Mo.
Josephine F. Goldsmith, R.N., 4628 Maryland Ave., St. Louis, Mo. Superintendent, Municipal Visiting Nurses, St. Louis, Mo.

NEW JERSEY

Julius Levy, M.D., Newark, N. J.
Estabel J. Gemmell, R.N., 23 Harvard St., East Orange, N. J. Supervisor, Educational and Extension Bureau of Child Hygiene, N. Y. State Dept. of Health.

C. V. Craster, M.D., D.P.H., Newark, N. J.
Mabel M. Clarke, R.N., Franklin, Sussex County, N. J. Health Officer and School Nurse.

NEW MEXICO

George S. Luckett, M.D., Sante Fe, New Mex.
G. W. Luckey, M.D., Los Lunas, New Mex. Health Officer.

NEW YORK

L. T. Genung, M.D., Ithaca, N. Y.
Miss Elsie Sarge, R.N., Ithaca High School, Ithaca, N. Y. School Nurse.

Michael M. Davis, Jr., Ph.D., New York, N. Y.
George Hoyt Bigelow, A.B., M.D., Dr.P.H., Cornell Clinic, New York, N. Y. Director, Clinic of Cornell University, Medical College.

Wm. H. Park, M.D., New York, N. Y.
Fernando Figueredo, M.D., 505 W. 142d St., New York, N. Y. Studying for Dr.P.H.

Alta Elizabeth Dines, New York, N. Y.
Arline Risdon Mansfield, R.N., 150 Claremont Ave., New York, N. Y. Pre-School Field Nurse, E. Harlem Nursing and Health Demonstration.

OHIO

Linsly R. Williams, M.D., New York, N. Y.
Robert G. Paterson, 83 S. 4th St., Columbus, Ohio. Executive Secretary, Ohio Public Health Association.

RHODE ISLAND

B. U. Richards, M.D., Providence, R. I.
Marion Albro Gleason, M.D., State House, Providence, R. I. Director, Child Welfare Division, R. I. State Board of Health.

TENNESSEE

E. L. Bishop, M.D., Nashville, Tenn.
Samuel W. Ahlmann, Obion County Health Unit, Union City, Tenn. Sanitary Inspector.

VIRGINIA

Homer N. Calver, New York, N. Y.
J. W. Cox, M.D., Alexandria, Va., Arlington County. Health Officer.

Roy K. Flannagan, M.D., Richmond, Va.
H. M. Wallace, M.D., Staunton, Va., Augusta County. Health Officer.

ASSOCIATE MEMBERS

NEW YORK

George M. Price, M.D., New York, N. Y.
Bernard Weiss, M.D., 150 East 72d St., New York, N. Y.

OHIO

Linsly R. Williams, M.D., New York, N. Y.
Faith Robinson Lanman, Ohio State University, Columbus, Ohio. Charge of Home Economics Dept. and teaching a course called "sanitation."

PENNSYLVANIA

J. W. Wright, M.D., Erie, Pa.
Don E. Wiseman, Care of Erie County Milk Association, Erie, Pa.

Homer N. Calver, New York, N. Y.
Arthur Edward Burke, S.B., C.P.H., 4235 Walnut St., Philadelphia, Pa. Bacteriologist, Commercial Milk Works.

LIST OF A. P. H. A. FELLOWS

VITAL STATISTICS SECTION

FRANK S. DROWN, B.S.,
Statistician, Philadelphia, Pa.
(This name was incorrectly published as "Frank S. Brown" in the January JOURNAL.)

RESIGNATION OF DOCTOR ARMSTRONG

Doctor Donald B. Armstrong has resigned as Executive Officer of the National Health Council, of which organization the American Public Health Association is a direct member. Dr. Armstrong, who has been connected with the Council for over three years, and to whose skill and diplomacy its successful operation is largely due, has accepted an appointment as Assistant Secretary of the Metropolitan Life Insurance Company. Dr. Armstrong, as one of the country's leading sanitarians, has served as Director of the Framingham Tuberculosis and Health Demonstration, and has served as Secretary of the Technical Board of the Milbank Memorial Fund. He entered upon his new duties with the Metropolitan on January 1, 1924, but through the courtesy of Dr. Lee K. Frankel, with whom Dr. Armstrong will be associated, the National Health Council will have the benefit of his advice and guidance until his successor can be secured.

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THE SANITARY ENGINEER

As a result of a meeting held in Washington early in January the following resolution was drafted by a committee representing the American Society of Civil Engineers, the American Public Health Association and the Federated American Engineering Societies:

WHEREAS, The work of sanitary engineers is essential to the protection and promotion of the Public Health, and

WHEREAS, The sanitary engineers in the United States Public Health Service are not now commissioned officers, and

WHEREAS, The commissioning of such sanitary engineers would improve the service and thereby benefit the public, and

WHEREAS, A bill entitled "A Bill to Promote the Efficiency of the United States Public Health Service" has been prepared by the United States Treasury Department which, in providing for the improvement of the service, authorizes the commissioning of sanitary engineers as well as other scientific personnel in the United States Public Health Service, and

WHEREAS, This bill was unanimously approved at a joint meeting by committees of the American Society of Civil Engineers, the American Public Health Association and the Federated American Engineering Societies; therefore, be it

RESOLVED, That the American Society of Civil Engineers endorses this bill as a first step in the advancement of the status of sanitary engineering in the United States Public Health Service, and be it further

RESOLVED, That a copy of this resolution be sent to the President of the United States, to the Secretary of the Treasury and the committees of the Senate and the House to which this bill is referred.

✦

DR. LUTHER EMMETT HOLT

Dr. L. Emmett Holt, who died in Peking, China, on January 14, 1924, will perhaps be longest remembered as the author of a book, "The Care and Feeding of Children," which, through twelve editions has been for twenty-five years an authority throughout the world.

In an editorial of January 16 the *New York Times* states ". . . recognized as a physician of the highest rank and standards. His influence was valuable in removing the doubts of his brother physicians concerning the value of popularizing health education. One of the greatest of the many great contributions to health which Dr. Holt made was that of placing health education in preventive pediatrics."

Though nearly seventy years old, Dr. Holt went to China in August, 1923, as special lecturer at the Union Medical College in Peking, an institution maintained by the Rockefeller Foundation. His death is a loss not only to the nation, but to the world whose children he made it his mission to save and serve.

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The Fifty-third Annual Meeting of the American Public Health Association will be held at Detroit, Michigan, during the week of October 20th, 1924.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to business office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

UNITED STATES CIVIL SERVICE EXAMINATIONS

Associate Statistician.—Receipt of applications to close March 11, 1924. The United States Civil Service Commission announces an open competitive examination for associate statistician. A vacancy in the Section of Statistics, Treasury Department, Washington, D. C., at $2,200 a year plus bonus, and vacancies in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

All citizens of the United States who meet the requirements, both men and women, may enter this examination; appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles.

Apply for Form 2118, stating title of the examination desired, to Civil Service Commission, Washington, D. C., or the Secretary of the U. S. Civil Service Board in any city.

Graduate Nurse: Applications will be rated as received until June 30. The examination is to fill vacancies in the United States Veterans' Bureau and in the Indian and Public Health Services at entrance salaries ranging from $720 to $2,500 a year. Appointees to positions in the Public Health and Indian Services are allowed the increase of $20 a month granted by Congress in addition to the basic salary.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or custom house in any city.

Wanted: Director, Bureau of Child Hygiene. Must be graduate in medicine or public health. May be man or woman. Some experience in public health necessary. A recent graduate who wishes to grow up with the work preferred. Salary $2,500 to $3,000. Send complete credentials with first letter. Address, State Health Officer, Bismarck, N. D.

POSITION WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at New York office by the 8th of the month.

Wanted: Position by chemist and bacteriologist, experienced in analysis of water, milk, foods, urine, etc., and also in the operation of a water filtration plant. University graduate, twenty-eight years of age, single. Address, "Water 283," care of this JOURNAL, New York address.

Wanted: Positions for sanitary inspectors. The School of Public Health of the University of Louisville and the State Board of Health of Kentucky is graduating a class of sanitary inspectors the first of February. Course covered one full year with six months of theory and six months of intensive field work, furnishing instruction and field experience in various branches of sanitary inspections and laboratory technic and equipping the student for effective work as staff assistant in state, county or city health departments. Field work is obtained with the state, county and city health departments.

Wanted: Position by sanitary engineer, American, twenty years of practical experience, eight years on Panama Canal, for the last six years with a South American government. Rat, fly, mosquito work, water supply, sewer, garbage disposal, fumigation, disinfection. Address 277 C.P., care of this JOURNAL, New York address.

Competent woman physician desires opening in child health work for city, state, or voluntary organization. Experience in pediatrics and obstetrics; organizing and directing work in prenatal clinic for city; field work for a state department of health; A.B. and M.D. degrees and post graduate. Available March 1. Address 280 W.F., care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Elements d'Hygiene. A l'usage des Ecoles Primaires Urbaines de Rurales. *Docteur François Dalencour. From the author, Port-au-Prince, Haiti.*

In Haiti the study of hygiene is obligatory in the schools, just as are grammar, mathecatics, etc. The little book before us is an excellent exposition of the fundamentals of hygiene, written in simple language, for the students of primary schools, and is well adapted for this purpose. There is little to criticize in the book, though one might suggest that for a tropical island, the subject of insects as the carriers of disease might be gone into more fully. One would have expected also that more stress would have been laid on such subjects as hookworm. The last chapter gives the laws on hygiene which are in force in Haiti. The superstition of the people constitute one of the great obstacles to progress in hygiene, and a short chapter is given to a fervid exposition of the evil influence of these superstitions, and the exalted part which scientific medicine has already played, and will play in the future more and more as these superstitions are overcome. The book has no index, and although it is only a little over 100 pages long this shortcoming injures its usefulness. It is written in French and can be commended to those countries in which French is the language of the home.

✤

Outlines of Medical Zoology. *R. W. Hegner, W. W. Cort, and F. M. Root. New York: The Macmillan Company,* 1923. 175 pp.

This is a brief and convenient compilation of technical information designed to assist in the accurate determination of the animal parasites of man. It is designed especially for the use of public health officers and field workers in the tropics who do not have libraries at hand. By reason of these limitations it deals only with the better known and more common parasites, especially in the section dealing with the protozoa and the helminths. The section treating of the arthropods is more extensive, occupying nearly half of the book.

Some additions and corrections should be made in a new edition—for example the statement is made on page 32 that "About 9 per cent of all persons are infected with *Endamoeba histolytica.*" The surveys upon which this percentage is based include many patients and hospitalized persons. To base a sweeping statement that 9 per cent of *all* persons are infected on these data is obviously uncritical. No mention is made of endamoeba in the sputum in pulmonary amoebiasis, or of amoebiasis of other organs. There is no presentation of Maurer's dots in the figures of corpuscles with the quartan plasmodium. Laveran and Mesnil's "Trypanosomiases" is cited as though published in English.

The illustrations are simple and diagrammatic and sufficiently abundant for routine field work but less valuable for critical laboratory work.

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Laboratory Studies in Tropical Medicine. *C. W. Daniels and H. B. Newham. Fifth edition, thoroughly revised. New York: Wm. Wood & Co.* xiv+576 pp. 1923. 7 colored plates, 184 figures in text.

This handbook is the outgrowth of many years of contact with disease in the tropics and of experience in solving the practical difficulties of instruction in this field by the authors in the London School of Tropical Medicine. It is primarily a laboratory handbook, not a guide for the practitioner, since it is professedly not concerned with therapeutics, neither is it concerned with public health measures such as quininization, mosquito control, or suppression of hookworm. The book contains an extensive treatment of the blood and its cellular constituents in normal and abnormal conditions, and of the blood-inhabiting protozoa. There is also a chapter dealing with pigment deposits primarily with reference to malaria and with degeneration of tissues. The chapter on intestinal protozoa is a compilation from Dobell's monographs with no mention of work done elsewhere. Donaldson's iodine-eosin stain, which is very useful for the quick examination of faecal smears, is not noted. The slow method only is given for the use of iron-haematoxylin on faecal smears. The rapid ripening of aqueous haematoxylin by the use of formalin or by a few drops of

lead acetate is not noted and the reader is not informed of the necessity of violet crystals of iron alum in the preparation of mordant and decolorizer for the haematoxylin.

The brief chapter of fifty-six pages on bacteriological methods might well be omitted as unnecessary in view of the many excellent and far more complete manuals in that field. In the discussion of the examination of faeces for the ova of helminths no reference is made to the time-saving and accurate methods of flotation and levitation with brine or calcium chloride. The table of dimensions of helminth ova should be revised to exhibit more fully the range of the ova in size. The list might well be increased and more illustrations added. One also misses any account of the laboratory care of fleas, lice and ticks and a discussion of *Rickettsia*. The book is a useful one in many respects but it is to be hoped that the next revision will bring the book nearer to the frontier.

✤

An Introduction to the Study of Mental Disorders. *Francis M. Barnes, Jr., M.A., M.D., Associate Professor of Nervous and Mental Diseases in the St. Louis University Medical School. St. Louis: C. V. Mosby Company,* 1923. Pp. 295. Price, $3.75.

This book is now passing through its second edition, and the author has given additional space to the subject of mental hygiene and social psychiatry, the mental factor in industry and vocational guidance. The book is written primarily for medical students, and aims to place in their hands a brief of psychiatric fundamentals with as little encumbrance of unnecessary details as possible.

✤

Healthy Mothers. Healthy Babies. Healthy Children. *S. Josephine Baker, M.D., D.P.H. Boston: Little, Brown & Company,* 1923. Price, $1.25 each.

Doctor Baker, who has served with such noteworthy success as Director of the Bureau of Child Hygiene of the New York City Health Department, has prepared three volumes each consisting of approximately two hundred words. The first is devoted to the expectant mother, the second to the care and welfare of the baby, and the third to the health of the growing child. The books are designed for the parent. The author's years of experience in preventive medicine have taught her that success in reducing maternal and child death rates depends largely upon our ability to educate the mother with regard to her own care, and the proper handling of the offspring. The books are not intended to take the place of a physician, but aim rather to serve as a guide to the mother in interpreting the instructions of the physician.

✤

Medical Biometry and Statistics. *Raymond Pearl, Professor of Biometry and Vital Statistics, Johns Hopkins University. Philadelphia: W. B. Saunders Company,* 1923. Pp. 379. Price, $5.00.

This book aims to teach biometric and statistical methods to students of biology and medicine who obviously have not had much mathematics. The language is simple, and the subject is disclosed in a logical order, which, as the author states, creates a sympathetic reaction on the part of the student who has not studied higher mathematics. The book represents the author's experience in the classroom. It is presented as an introduction to the subject and does not pretend to deal exhaustively with modern statistical methods. The book includes a historical review, examples of the raw data of biostatistics, mechanical methods of tabulation, the graphic representation of data, life tables, and closes with the theories of probability and the measurements of variation and correlation.

✤

The Medical Department of the United States Army in the World War, Volume V. Military Hospitals in the United States. *Prepared under the direction of Maj. Gen. M. W. Ireland, M.D., Surgeon General of the Army, by Lieut. Col. Frank W. Weed, M.C., U. S. Army. Washington: Government Printing Office,* 1923.

This volume of 857 pages has been prepared by Lieutenant Colonel Frank W. Weed of the Medical Corps of the Army. The descriptions of the individual hospitals have been taken from the histories written by medical officers during the war. The introduction gives an extremely interesting history of the evolution of the military hospital, going back as far as the time of Homer and ancient Rome, describes the early American hospitals and finally comes down to those of the World War. The construction of hospitals, their organization, administration and control are

fully discussed. Every type of hospital is described and illustrated by photographs and by architect's drawings. Education and reconstruction work receive due attention. The "Correlated Activities" are also described and figured abundantly.

A particularly interesting chapter is that on the transportation of the sick and wounded, in which hospital trains are described and illustrated by photographs. Among the newer hospitals described, those for aviation and embarkation will attract attention. Airplane ambulances and litters developed by the Great War are described and shown in good photographs.

The book is well prepared, and as far as can be noticed there is no point concerning military hospitals which has not been mentioned and treated of. It is well and abundantly illustrated throughout. A limited number of copies are being sent free to libraries and institutions, but the book is for sale by the Superintendent of Documents, Government Printing Office, at $2.25 per copy.

PUBLIC HEALTH NOTES

Measles Prevention.—The New York City Health Department announces the distribution of a limited amount of convalescent serum for the prevention of measles for exclusive use among children under three years of age, if less than seven days have elapsed since they were exposed to a case of measles. This limitation is made because of the small amount of serum available and furthermore due to the fact that the great danger from measles is the complicating pneumonia which occurs usually in children under three years of age. Serum should be given immediately after the discovery of exposure. The blood that is used to produce the serum is obtained from healthy convalescent donors eight days or more after they have developed a measles rash.—*Weekly Bulletin*, Jan. 19, 1924.

✚

Juvenile Board of Health.—The Dillon County, South Carolina, Health Department, of which Dr. R. G. Beachley is health officer, has organized Juvenile Health Boards in the schools of that county. Each school has its own Board of Health composed of members from the student body. Each grade elects one student who shall be a member of the Board and the health officer is a pupil from the highest grade in the school. Among the duties imposed upon this Juvenile Board of Health are the responsibility of keeping the school building and grounds clean, assisting in the ventilating of rooms twice daily, assisting with games of the right kind on the grounds, and the making of daily health inspections. The last responsibility includes a check-up on the use of the tooth brush, the cleanliness of finger nails, sleeping with open windows, washing the face, drinking milk in place of coffee and tea, etc. A score card has been developed and the entire plan is outlined in a leaflet published by Dr. Beachley.

✚

"Pressing the Button" for Evidence and for Public Education.—"The photographic witness is an aid no health officer can well ignore." . . . "In no other municipal administrative function is there so much need of graphic representation of existing conditions necessary as in the case of public health. The oft-quoted question in inspection service of any kind is: 'Were the conditions described really existing at the time of inspection, or is there not some material exaggeration in the report which does not faithfully represent the existing condition?' The reply is that the camera will show what the situation is and will actually convey a clearer picture than the eye remembers. The value of all photographs will depend upon how far the picture can reproduce existing conditions or whether it can delineate normal from abnormal states."

The numerous applications suggested in this interesting article should stimulate increased use of photography in public health work.—"The Camera and the Health Officer," C. V. Craster, M.D., D.P.H., Health Officer, Newark, N. J., *Nation's Health*, 5:779-781. (Nov.) 1923. 6 illus.

HEALTH OFFICER'S EXCHANGE

February 11, 1924.

EDITOR, AMERICAN JOURNAL
OF PUBLIC HEALTH:

In view of the widespread newspaper publicity which has been given to the reactions following the injection of frozen toxin-antitoxin mixture in this state, it seems desirable at this time to issue a statement giving the main facts.

At Concord and Bridgewater, Mass., two lots of 1-L diphtheria toxin-antitoxin mixture which had satisfactorily passed all our laboratory and the United States Hygienic Laboratory tests for harmlessness and purity, were exposed to temperatures of zero or less after distribution during the recent extreme, cold weather. This material, when injected into the arms of children, produced in the majority, within twenty-four hours, marked constitutional reactions and a severe local inflammatory reaction. The constitutional reactions have subsided and the local processes are now showing rapid improvement. Other vials of these same lot numbers which had not been exposed to low temperatures were used in hundreds of cases and produced no unusual reactions. Furthermore, in the Bridgewater cases, the same material had been used a week previously for the first injections on the same children, and it was in the week following the first injection that the other vials of the same lot became frozen and caused the reactions.

Experiments carried out at our antitoxin and vaccine laboratory show that whereas a short period of freezing does not materially affect this toxin-antitoxin mixture, severe freezing of eighteen hours apparently causes the antitoxin to dissociate from its combination with the toxin and to assume a changed physical stage, the antitoxin becoming more or less insoluble and the mixture therefore becoming toxic.

At our request, all the circumstances were investigated by Dr. W. T. Harrison, of the United States Public Health Service, and Drs. Bela Schick, William H. Park, Milton J. Rosenau, Hans Zinsser, and Edwin H. Place. This statement is made because we have felt that it is desirable to caution physicians against using toxin-antitoxin mixtures that might possibly have been frozen, and also to emphasize the fact that freezing may lessen somewhat the antitoxic strength of diphtheria antitoxin and diminish the immunizing potency of other immune serums.

In the future this department will distribute the one-tenth L mixtures. Our confidence in the value of diphtheria toxin-antitoxin in the prevention of diphtheria is in no way altered, and these experiences, distressing as they are, should not cause health officials to abandon the use of this valuable preventive measure.

I should appreciate it if you could insert my telegraphic statement in the next issue of the JOURNAL.

EUGENE R. KELLEY, M.D.,
State Health Commissioner,
Boston, Massachusetts.

✚

February 11, 1924.

EDITOR, AMERICAN JOURNAL
OF PUBLIC HEALTH:

I have been asked by the Secretary to add a few additional comments to the communication of Commissioner Kelley concerning the use of the frozen toxin-antitoxin. I am in entire agreement with his statement.

I have since this accident received some interesting information. Three years ago some of our old standard three L plus preparation was moderately frozen and used, and again this year in the cold snap some two hundred children were injected with the new preparation of the one-tenth L plus mixture without harmful effects. Some of this toxin-antitoxin solution was frozen for two full days at a temperature as low as ten degrees.

Experimental work in these laboratories and statements made to me by Dr. White and Dr. McCoy indicate that most of the preparations on the market show but little increase of toxicity after freezing.

Fortunately, most of the toxin-antitoxin now being used in the United States is the one-tenth L plus mixture which has in each dose .075 units of antitoxin and four minimal fatal doses of toxin for a guinea pig. Even if the greatest possible dissociation occurred in this preparation, it would not be sufficient to produce any serious effect. Everyone seems to be agreed that this new preparation has been sufficiently tested to make it desirable to gradually introduce it as the standard.

During the past four years, the diphtheria death rate in New York City has been cut in half and the morbidity rate has been reduced 40 per cent. This has been due to the combined effect of immunization and education. More than one million injections have been given. There has not been a single accident. As Dr. Kelley has stated, this single regrettable occurrence should in no way lessen our endeavor to immunize the child population of the country against diphtheria. It suggests that it is not wise to use any biological product which has been subjected to unusual influences that may have decreased its value.

WILLIAM H. PARK, M.D.,
Director, Health Department Laboratories, New York City.

Scholarships to Physicians

On page 836 of the October, 1923, issue of this JOURNAL we announced that the American Child Health Association had appropriated $10,000 for resident and travel scholarships to physicians affording an opportunity to secure special training in child health work. Scholarship awards have been made to the following Fellows of this association. Dr. R. L. Carlton, Winston-Salem, N. C.; Dr. William DeKleine, Saginaw, Michigan; Dr. Russell B. Sprague, Yarmouth Port, Massachusetts. The following members of the Association have been honored with such awards. Dr. Charles Armstrong, Salisbury, N. C.; Dr. William W. Bauer, Racine, Wisconsin; Dr. Eugene C. Chimene, Minneapolis, Kansas; Dr. George C. Marlette, Bay Minette, Alabama.

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Imitation Microscope for Exhibitions.—A dozen imitation microscopes were used to show pictures of communicable disease germs, in connection with a storeroom exhibition conducted by the Social Hygiene Society of the District of Columbia. Each "microscope" was made out of "a small box 6 in. x 8 in. x 18 in., with an electric lamp at the bottom, an eye-piece at the top, and a piece of frosted or ground glass between, on which was painted the organism as it appears in the microscope. The eye-piece can be made from an empty brass cartridge with the fuse cap removed. A well painted 'slide' appropriately colored and adjusted between the lamp and the eye-piece so as to show a circular 'field' reveals to the observer an excellent likeness of a genuine microscopic slide. The whole apparatus can be made at very little expense."

The same article describes a successful social hygiene exhibition which was open to men and women, boys and girls.—An effective Social Hygiene Exhibit, Willard C. Smith, *Journal of Social Hygiene*, 9:478-487. (Nov.) 1923.

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Phrases and Titles to be Borrowed.—The quotations below are taken from printed matter of the Saint Paul Association, St. Paul, Minnesota. (It is too modest to acknowledge having a street address.)

"Make Health Contagious."

"Do you know a healthy child when you see one?"

"Child Health Day will not be a conglomeration of medical and scientific terminology, but a day of common sense study."

"Questions of the Day" (general title of a Child Health Day program made up of a series of questions to be answered by speakers).

"Why the Day? People in all other professions have their institutes, their conventions, and who has a more important profession than a mother—a parent? This is their convention."

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A Monthly Bulletin, "outlining the activities of the San Francisco Tuberculosis Association," 55 New Montgomery Street, also uses a printed cover page, in this case a new cover for each month. The indented side headings might look it bit better with the boxes made up of dots. Good mimeograph work is sometimes marred by the effort to add distinction by the use of lines or dots, usually without success.

PUBLIC HEALTH LABORATORY NOTES

C. C. YOUNG

The Wassermann Reaction in Diabetes.—Authors made 501 serologic tests in diabetes, 201 by the Noguchi method and 300 by the Kolmer technic. There were eight cases of coincidental syphilis and diabetes, three of which may have been latent syphilis or false positives, and two probably false positive reactions. Conclusion seems to be that the Wassermann reaction is probably only rarely falsely positive in diabetes. These cases are probably not greater than in other types, with the same methods employed.—Reed Rockwood and Arthur H. Sanford, *Amer. Jour. of Syph.*, 7:679, (Oct.) 1923. R. L. K.

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On the Dissemination of Hemolytic Streptococci Among a Group of Healthy People.—The authors call attention to the similarity in appearance of hemolytic streptococci of the true-disease-producing beta type, and the non-pathogenic alpha prime type as observed on the standard poured blood-agar plate of Brown. In a repeated bacteriological survey of a closely controlled group of people, at various times of the year, no evidence was obtained of any alteration in the stable type of parasitism of the beta type of streptococcus. On the other hand, a wide distribution of alpha prime streptococci took place without streptococcic infections.—A. L. Bloomfield and A. R. Felty, *Bulletin Johns Hopkins Hosp.*, 34:414, (Dec.) 1923. C. C. Y.

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Microbic Changes in Saliva.—An investigation was undertaken in order to study certain facts relating to the development of fetor, and changes in saliva which have a bearing on the deposit of dental calculus. The author studied changes in saliva due to normal salivary flora. Reaction changes were determined colorimetrically. It was observed that saliva incubated at 37° C. developed a slightly sour odor and an acid reaction (pH 6.6) in 12 to 24 hours. On further incubation it developed the halituous fetor of pyorrhea. The terminal reaction was reached in 48 to 72 hours (pH 8.6). It was assumed that an initial change toward alkalinity was due to loss of carbon dioxide, that development of acidity on incubation represented the fermentation of food particles, or mucin, or glyco protein, and that the secondary alkaline change was due to bacterial putrefaction, which only occurs when fermentable carbohydrates have been exhausted. Various experiments were carried out to determine the effect of boiling, the effect of mercuric chloride and the effect of the addition of certain carbohydrates. The author points out that calcium salts are held in solution by acids and precipitated by alkalis, and that alkali or acid production depends on the kind of debris available. Consequently, calcalus should only be deposited in a protein residue, which favors alkali formation. He further states that microbal changes in the mouth depend primarily on the kind of pabulum, as well as the kinds of organisms present. An extensive review of the literature on the subject is given.—Ivan C. Hall, *J. A. M. A.*, 81:1676, (Nov. 17) 1923. M. C.

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Mechanism of Trypanosoma Lewisi Infection.—The author followed very accurately the course of development of Tr. Lewisi in rats and found that by the tenth day there was final inhibition of the reproduction of the trypanosomes; there occurred between the ninth and fifteenth days a sudden drop in the number of parasites; from a week to several months after the first drop in numbers the parasites totally disappear. The retardation and final inhibition of reproduction is the result of the formation of a reaction product in infected rats which inhibits reproduction of the trypanosomes but does not kill them. No such product was demonstrated in vitro cultures of the organism.—Taliaferro, *J. Exp. Med.*, 39:171, (Jan.) 1924. M. S. M.

✚

Studies in Virulence. II.—By an in vitro method, using a simple and ingenious automatic transferring device, the virulence of a pure line of a practically avirulent strain of pneumococcus picked by the Barber method was built up ten million fold. The media used was pasteurized skimmed milk. The best results were secured by a transfer every eight hours. The pH had slight effect; virulence

was maintained at pH 5, 6, and 7, and decreased slightly at 8, more at 9.—Felton and Dougherty, *J. of Exp. Med.*, 39:137, (Jan.) 1924. M. S. M.

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Studies on Virulence. III.—Growing a virulent strain of pneumococcus in plain broth of gradually changing pH there occurred a loss of virulence proportional to the pH, the change being more rapid on the alkaline side. Simultaneously the ability to agglutinate became more marked, although still specific, the change being greater on the alkaline side. Meat infusion caused a decrease in virulence proportional to the concentration of the infusion; this was offset to a marked degree by either dextrose or peptone.—Felton and Dougherty, *J. Exp. Med.*, 39:155, (Jan.) 1924. M. S. M.

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Filter-passing Virus in Epidemic Influenza.—Six cases of epidemic influenza in various stages were investigated. Suspicious cultures of bodies resembling Bacterium pneumosintes were obtained in three cases, twice from the lung filtrates of inoculated animals and once from the filtrate of nasopharyngeal washings direct. In these instances material was obtained within thirty-six hours of the acute onset, thus confirming the observations of Olitsky and Gates. Macroscopic and microscopic findings in the lungs of inoculated animals were uniformly negative.—Detweiler and Hodge, *J. Exp. Med.*, 39:43, (Jan. 24) 1924. M. S. M.

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Paratyphoid-Enteritidus Infection. III.—Mice which survive a preliminary dose per os of paratyphoid-enteritidis bacilli are more resistant to a second dose per os of a similar epidemic strain than are mice which have received no preliminary culture. The amount of this resistance is related to the pathogenicity of the preliminary strain more than to its antigenic similarity to the second strain. Mice which survive a preliminary dose per os of paratyphoid-enteritidis bacilli are more resistant to a lethal dose of mercuric bichloride per os than are mice which have not received the preliminary bacterial culture. Mice which have resisted and mice which have recovered from a preliminary dose per os are more resistant to a lethal intraperitoneal dose of an epidemic mouse typhoid strain than are mice which have not received the preliminary culture. Mice in which the preliminary dose of paratyphoid-enteritidis bacilli has induced a chronic infection readily succumb to a second dose of such bacilli. These findings indicate that the resistance mechanism of the dose contains important nonspecific factors which vary in degree with individual mice.—Webster, *J. Exp. Med.*, 39:129, (Jan.) 1924. M. S. M.

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The Blood Culture as a Diagnostic Aid.—One thousand, one hundred thirty blood cultures were examined. In 235 positive cultures, six organisms other than B. typhosus or B. paratyphosus B, were responsible for twelve cases which could not be differentiated clinically from true typhoid, suggesting that the variety of these infections is greater than presumed. The blood culture is a most valuable aid in determining the nature of these other infections.—Aubrey H. Straus, *Virginia Med. Monthly*, 50:701, (Jan.) 1924. P. C. Y.

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The Diagnosis and Cure of Gonorrhea.—The diagnosis is based upon the cultivation of the organism, the use of stained smears, and to some extent upon the complement fixation test. The gonococcus can be cultivated easily if the medium is warmed before inoculating and kept warm until its oxygen tension has been reduced. With proper treatment, the cultivability of the gonococcus seems to disappear first and seldom reappears. The finding of Gram-negative intracellular diplococci is the second factor to disappear; the subjective and objective findings persist longer and the patient cannot be considered to have been cured until they have been entirely eliminated. Despite favorable comment, the author attaches very little value to the findings with the complement fixation test.—G. W. Hartman, Calif. State J. M., San Francisco, 1923, 21, 303. *Abstr. Bact.*, 7:425, (Nov.) 1923.

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Application of Author's Precipitation Test to Spinal Fluids.—The author gives a résumé of the Kahn test as applied to serums and outlines the method for spinal fluids. The globulins of the spinal fluid are first precipitated with ammonium sulphate and the precipitate taken up in an amount of saline equal to about 1/10 the original volume of spinal fluid. This concentrated solution is then tested with antigen according to the procedure used with serums. It is stated that

this precipitation method for spinal fluids compares favorably with the Wassermann test.—R. L. Kahn, *Proc. Soc. Exp. Biol. and Med.*, 21:76, 1923. P. L. K.

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Subacute Bacterial Endocarditis Due to a Hemolytic Hemophilic Bacillus: Report of a Case.—The authors recovered a Gram-negative bacillus of the hemophilic group from the blood of a case giving a clinical picture of subacute bacterial endocarditis. The review of the literature shows no report of this organism occurring in a definite pathogenic capacity. The authors base their conclusion of its etiologic rôle in the case cited upon: its isolation in pure culture from blood on three occasions during life and also at necropsy; the occurrence of morphologically identical bacilli in microscopic sections of the vegetation and of the secondary embolic lesions; and the presence in the patient's serum of specific antibodies against the organism. The bacteriology of the blood cultures are of particular interest to the laboratory worker. No growth occurred in anaerobic cultures and growth in the first generation of arobic cultures was slow, becoming visible to the eye on the third and fourth day of incubation in dextrose broth and on the fifth day in plates. Growth was luxuriant in Dunham's peptone solution plus 2 per cent blood extract.—C. P. Miller and Arnold Branch, *Arch. of Int. Med.*, 32:911, (Dec.) 1923. C. C. Y.

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Experiment in Production of Typhoid Agglutinins in Successive Generations of Rabbits.—The author reviews the literature with the report that several investigators have established the fact that offspring born to mothers previously rendered immune to a disease are immune for weeks and months after birth. The author subjected successive generations of rabbits to typhoid inoculations and found that considerably higher agglutination titers of strains could be developed in individuals which had been under immunization for three or four generations than in first generation animals of untreated stock. Titers were heightened by subsequent injections of foreign protein. The author claims that antibodies pass from mother to offspring through the placenta and not merely by way of the milk. He determined it by immunizing pregnant females to typhoid bacilli, killing them a few days before term and testing the blood and the amniatic fluids of their fetuses for agglutinins. He also immunized pregnant females to sheep serum and then made precipitin tests on the fetal blood. It is suggested that the conflicting evidence regarding the passage of antibodies through the placenta of different kinds of animals—may be due in part not only to the type of antibody concerned, but also to the fact that structurally the placental relations between mother and young are different in different kinds of animals.—M. F. Guyer and E. A. Smith. Zool. Lab. Univ. of Wis., *Jour. Inf. Dis.*, 33:498, (Dec.) 1923. L. D. H.

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Can All Strains of a Specific Organism be Recognized by Agglutination?—The author studied 55 different cultures representing seven natural groups of the nodule-forming bacteria in seven groups of the commonly cultivated legumes of this country. Cultures were secured from widely separated sources. Some were freshly isolated while others were ten years old. Immune serums from 40 different strains were used to group the organisms according to the agglutination test. The agglutination tests differentiated the cultures studied into at least eighteen serologic groups. Some strains were not agglutinated by any serum and hence more groups were possible. The agglutinations were highly specific while the minor agglutinations among the various groups were in low dilutions, rarely reaching a dilution of 1:250. The individual strains of any particular serologic group were always of the same species. Group agglutinations among strains of different species were in low dilutions and not frequent. The author's conclusion is that these observations indicate the impossibility of identifying an organism by means of the agglutination test.—J. W. Stevens, *J. Inf. Dis.*, 33:557, (Dec.) 1923. L. D. H.

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An Immunity Reaction in Scarlet Fever.—Author made a study of the skin reaction in scarlet fever suggested by Schultz and Charlton in 1918. If one c.c. of serum from a normal individual is injected intracutaneously in the skin of a scarlet fever patient with a bright rash one will observe after about six hours a complete blanching of the skin over the injected area; the general appearance of this area being that of normal skin. It appears that only individuals who have had

scarlet fever or are naturally immune from this disease are capable of giving this reaction. The serum of children who presumably have no immunity to scarlet fever do not give this reaction. Author suggests the hypothesis that we are dealing in scarlet fever with a toxin-antitoxin reaction as in the case of diphtheria and the explanation of this skin reaction may be similar to that of the Schick reaction. Heating the serum to 55°C. does not appear to influence the reaction. Neither does storage of the serum for long periods in the cold affect the reaction.—W. Mair, *The Lancet*, 205:1390, (Dec. 29) 1923. R. L. K.

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Observations on the Determination of Blood Urea.—When the soy bean urease method is applied to whole blood, the urea obtained is partially determined by the amount of meal or the concentration of extract employed. In beef blood the apparent urea content may be increased by 50 per cent when a concentrated soy bean extract is used, though either concentrated or dilute extract will recover added urea quantitatively. Many human bloods also show a marked difference in urea content in relation to the concentration of enzyme used. Tungstic acid filtrates from human bloods usually show some increase with concentrated extract but in many instances the increase is very slight. Until the "pseudo urea" is identified and its significance in relation to pathological bloods is better understood, the results for urea in blood should better be obtained from blood filtrates.—Jeanette A. Behre, *J. Biol. Chem.*, 56:395, 1923.

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A Modification of the Folin Wu Method for Making Protein Free Blood Filtrates.—The modification recommended is the use of eight volumes of N/12 H_2SO_4 in the Tungstic acid precipitation of blood proteins instead of seven volumes of H_2O and one volume of 2/3 N H_2SO_4 as recommended in the original method. The modification is said to be very successful even though slightly brown filtrates are sometimes obtained. The advantages of the method are: (1) only two solutions are required instead of three; (2) filtration is more rapid; (3) 15 per cent more filtrate is obtained; (4) the filtrate is more nearly neutral.—Russell L. Haden, *J. Biol. Chem.*, 56:469, 1923. A. B. H.

Taste and Odor in New York City's Supplies.—Taste and odors from Asterionella, Tabellaria, Anabaena, Aphanizomenon (with admixtures of Coelosphaerium, Microcystis), Uroglena, Synura, Dinobryon and Peridinium. Best method of treatment is the application of copper sulphate by dragging in burlap bags through reservoirs.—Frank E. Hale, *J. A. W. W. A.*, 10:5, 829, Sept. 1923.

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Improving Wilmington's Water Supply.—Wilmington, N. C., spends $260,000 to furnish reliable quality of water at lower operating costs. Water from new intake flows into new mixing chamber, reconstructed coagulating basin, then to filters.—C. W. Smedberg, *Public Works*, 54:9, 277, Sept. 1923.

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Volumetric Method for the Determination of Potassium.—The complex compound $K_2Pb\ [Co\ (NO_2)_6]$ is used for pptg. and ditg. K indirectly by a volumetric method. Evap. the soln. to a small vol., add when cool a large excess of $NaNO_2$ (K free) and Pb $(NO_3)_2$ and a few $Co(NO_3)_2$ or $CoCl_2$ crystals. All the greenish black ppt. which forms slowly to stand 30-4 hrs. (shake to prevent sticking), filter into a Gooch crucible, wash with H_2O, digest for 0.5 hr. with excess of 0.1 N $KMnO_4$ contg. a few drops of dil. H_2SO_4, heat slowly almost to boiling and add more dil. H_2SO_4. Titrate hot with 0.1 N $Na_2C_2O_4$ soln. The pale rose color of Co does not inhibit titration. If MnO_2 ppts. during the heating, add an excess of $Na_2C_2O_4$ and titrate back with K MNO_4. Calc. the results from reactions: 12 K MnO_4+18 H_2SO_4+5 $[Co\ (NO_2)_6]$ PbK_2—6 K_2SO_4+12 $MnSO_4$+10 KNO_3+5 Co $(NO_3)_2$+5 Pb $(NO_3)_2$+18 H_2O. The heavy metals should not be present or NH_4 salts. Mg, Co, Sr and Ba do not hinder. If much SO_4 is present, it should be removed as the $PbSO_4$. The soln. should be neutral or slightly alkaline.—M. Bulli and L. Fernandes, *Ann. Chim. Applicata*, 13:46 (1923). *Am. Chem. Soc. Absts.*, 17:3655, (Nov.) 1923. E. F. E.

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NOTICE

Each month we desire to publish in PUBLIC HEALTH LABORATORY NOTES two or three short articles (not exceeding 250 words) dealing with some phase of applied bacteriology, labor saving devices, modified methods, etc. Contribution should be in the hands of associate editor before the fifteenth of each month.—C. C. YOUNG.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Health Record for November 1923.—The low November death rate among Metropolitan Industrial policyholders (7.8 per 1,000) emphasizes the very satisfactory health situation now prevailing throughout the United States and Canada. This is the minimum ever recorded in November among this large group. Furthermore, it represents a decline from the October death rate of 8.0 per 1,000 and this decline has taken place at a time of the year when a seasonal increase is expected.

The general death rate in the large cities of the United States in November was 12.2 per 1,000, which is the same as for the corresponding month of last year. There was registered, however, a small increase, among the general population, over the October figure of this year. Increased prevalence of diphtheria, influenza, measles, scarlet fever, smallpox and whooping cough was reported throughout the United States as compared with October, although there were fewer cases of malaria, poliomyelitis and typhoid fever. As compared with November, 1922, there were more malaria, measles, poliomyelitis, scarlet fever and smallpox cases, with less diphtheria, influenza and whooping cough.—*Statistical Bulletin*, Metropolitan Life Insurance Company, (Dec.) 1923.

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Child Mortality with Reference to the Higher Education of Parents.—Statistics from a group of 939 families reporting 2,475 pregnancies show that families in which the father is a doctor do not have lower mortality rates among children than the other professional or business groups (113 deaths at all ages per 1,000 births as compared with 120 for children of ministers, 62 for children of men in other professions and 91 for children of business men). The small group of doctors engaged in a specialty shows unusually high rates. Miscarriage rates for doctors' wives are high, probably because reports from other occupational groups are falsely low. College attendance of a parent or extended years of schooling is accompanied by slightly higher mortality rates of children. In case both parents have attended college or had extended schooling, there is a slightly lowered mortality rate. A disproportionate number of children whose parents have had less than a grammar school education have died of infectious diseases. The more highly educated parents report a larger proportion of living children who are in robust health.—W. G. Lennox, *Am. J. Hyg.*, 4:52-61, (Jan.) 1924.

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Longevity of Locomotive Engineers 1912 and 1922.—From figures recently submitted by the Locomotive Engineers Mutual Life and Accident Insurance Association it was calculated that the American locomotive engineer in 1922 at the age of twenty-eight had an expectation of 41.14 years, as compared with 40.55 for 1921 among males in the U. S. Registration States at age twenty-seven, and with 39.36 for males at age twenty-eight insured in the ordinary departments of life insurance companies for 1900-1915. Locomotive engineers appear to have an expectation of life about as good as the average American male.

In the last ten years, the declines in mortality for this occupation between ages thirty-one and fifty-five ranged from 32 to 44 per cent. The decline in the accident death rate is the most notable, in 1912 the rate being 318 per 1,000 and in 1922 being 167. Safety provisions have been a large factor in this decrease. The typhoid fever death rate declined from 29 per 100,000 in 1912 to 2 in 1922, and the tuberculosis rate showed a drop from 55 to 40 in 10 years. The standardized death rates of organic heart disease showed an increase of 74 per cent during the period, while among males in the U. S. Registration Area there was a decrease of 90 per cent for comparable ages between 1910 and 1921. For cerebral hemorrhage and apoplexy the increase in the death rate between 1912 and 1922 was 11.4 per cent, but among males in the general population there was a decrease of 2.2 per cent. Bright's disease, however, showed a decrease of 36 per cent between 1912 and 1922 as compared with a decrease of 23 per cent for males in the general population.—Metropolitan Life Insurance Company *Statistical Bulletin*, Dec., 1923.

Decrease of Births in Berlin.—The birth rate for the third quarter of 1923 was only 9 per 1,000 which is one-third of the birth rate of the pre-war period; it is without doubt the lowest birth rate ever recorded in a city. The number of births for the year 1922 was about 8,000 less than the deaths. The loss in population for the year 1923 is estimated to be about 12,000. The main reason for this decrease is the general poverty of the people which makes an addition to the family a luxury. The bad housing situation, crowded quarters, high cost of medical attendance, medicines, etc., are all important causes. An increasingly large percentage of confinements takes place in institutions. In Greater Berlin in 1919, 5,600 women (10 per cent of all confinements) were delivered in institutions; in 1920, 7,700, or 12 per cent; in 1920, 9,100, or 16 per cent.—*J. A. M. A.*, 81:2195, (Dec. 29) 1923.

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The Increased Mortality Rate in Hungary.—The births in Hungary were seemingly at a standstill in 1922 while the mortality rate increased over the already large figure for the preceding year. The total number of marriages, 83,372, was 4,717 less than in 1921. There was an increase of 1.2 births per 1,000 but the slight rise was destroyed by the higher death rate. The ratio rose from 18 deaths per 1,000 in 1921 to 19.6 in 1922. Tuberculosis claimed first place with 2.41 deaths per 1,000. Measles and scarlet fever caused the death of 6,225 children, compared with 2,620 in 1921. The infant mortality rate is still on the increase; in 1922 it was 195 per 1,000 births.—*Lancet*, 1:46, (Jan. 5) 1924.

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Births and Deaths, Vienna, First Six Months of 1923.—During the first half year of 1923 there were 14,449 deaths in Vienna's total population, which amounted to 1,842,000 on January 31, 1920. This number of deaths is a considerable decrease over the same period of 1922 when there were 17,221. More favorable circumstances in the city probably explain these results. The largest number of deaths were from pulmonary tuberculosis (2,201), cancer (1,414), organic diseases of the heart (1,876), and inflammation of the lungs and pleurisy (1,311). There were 14,682 live births and 1,463 still births during this period.—*Public Health Rep.*, 38:2992, (Dec. 14) 1923.

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Marriages, Births and Deaths in Austria.—The average number of marriages in the present Austrian republic for 1911-1913 was 47,887. The rate in 1911 was 7.2 per 1,000. The number of marriages dropped within the next 3 years to 27,878 in 1916 (4.4); then it gradually increased to 40,892 in 1918 (6.62). After that year it went up by leaps and bounds, reaching 75,822 (12.3); in 1920, it was at the maximum, 82,596, and in 1921 it stood at 78,126 (12.7). A similar curve is shown by the number of births, although the recuperation is not so marked. From 1914 to 1921 the births per 1,000 inhabitants were: 24.11, 19.07, 15.23, 14.30 (minimum), 14.57, 18.52, 23.12, and 23.85. A reverse diagram is that pertaining to the number of deaths, excluding deaths at the fighting front and in the back lines but including prisoners of war and fugitives. The number of deaths per 1,000 from 1914-1921 was: 18.13, 21.30, 20.90, 22.88, 26.40, 19.03, and 17.06. The relatively high figure for 1919 is due to the rather high mortality of wounded or diseased prisoners of war and fugitives.—*J. A. M. A.*, 82:140, (Jan. 12) 1924.

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Death Rates of Mothers from Childbirth, 1922.—The death rate of mothers from childbirth or puerperal causes in the birth registration area (6.6 per 1,000 live births) was lower than for any year since 1916.

For the 9 states and the District of Columbia (constituting the birth registration area of 1915, exclusive of Rhode Island) the death rate from puerperal causes was 6.2 per 1,000 live births as compared with 6.5 in 1921, 7.6 in 1920, 6.8 in 1919, 8.9 in 1918, 6.3 in 1917, 6.2 in 1916, and 6.1 in 1915.

The relatively high rates for the years 1920, 1919, and 1918 were doubtless due in great part to the influenza epidemics at that time, which took heavy toll of pregnant women. The rate of deaths from childbirth to the number of women bearing children was 1 to 150.

Of the 30 states for which figures are available, South Carolina has the highest 1922

death rate from puerperal causes (10.7 per 1,000 live births), and Minnesota the lowest (4.9). Separate rates for the white and colored are shown for only the six states of Kentucky, Maryland, Mississippi, North Carolina, South Carolina, and Virginia. For 1922 the highest rate for the white appears for South Carolina (8.5) and the lowest (5.3) for Maryland, while for the colored the highest rate (18.5) is for Kentucky, and the lowest (8.4) for Maryland.—*Dept. of Commerce*, Washington, D. C., (December 26) 1923.

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Summary of **Causes of Death, 1923.**—The crude death rate from typhoid fever in 1923 for 71 cities in the Weekly Health Index was 3.3 per 100,000 as against a rate of 3.5 in 1922, the highest 1923 rate being 17.1 in Atlanta and the lowest being zero for Norfolk. The death rate from tuberculosis (all forms) was 96.4 in 1923 as compared with 102.9 in 1922. Tacoma had the lowest rate for 1923, 25.6, and San Antonio the highest, 226.4. Pneumonia claimed 154.5 deaths per 100,000 population as compared with 126.2 in 1922, ranging in 1923 from 64.8 in Seattle to 371.0 in Pittsburgh. The rate from violence, 94.3, fell slightly in 1923, the 1922 rate being 96.7.—U. S. *Weekly Health Index*, January 12, 1924.

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Mortality in **Large Cities of United States, 1923.**—The death rate of 70 large cities of the United States for the 52 weeks of 1923 taken from the Weekly Health Index was 13.0, which was a little higher than the rate for 1922, 12.6. The range was from 17.7 in Atlanta and New Orleans to 7.8 in Akron. Forty-four of the 69 cities for which comparative figures for the two years were available showed a higher death rate in 1923 than in 1922. The provisional infant mortality rate for 1923 for the 56 cities in the birth registration area appearing in the summary was 75 as compared with 80 for 1922. The rates ranged from 105 in Richmond, Louisville and Lowell and 104 in New Bedford to 41 in Tacoma and 47 in Seattle. The range for 1922 was from 127 in Fall River and 107 in Trenton to 50 in Seattle and 54 in Minneapolis.—U. S. *Weekly Health Index*, Summary for 70 cities, 1923.

Health Situation in 1923.—*New York City:* The death rate was 11.72 per 1,000 as compared with 11.93 in 1922, a decrease of .21. This is the second lowest death rate in the history of the city, the lowest death rate having been 11.17 in 1921. The outstanding feature of the year's mortality was the extremely low infant mortality rate which was recorded as 66 per 1,000 births reported; during 1922, 75 infants under one year of age died out of every 1,000 infants born, a decrease of 9 per 1,000 births, which is equivalent to a saving of approximately 1,000 lives at this age group. The low death rate was largely due to this saving of lives among children under five years, as among persons five to sixty-five, the deaths increased.—New York City *Weekly Bulletin*, Jan. 5, 1924, and the *Cincinnati Enquirer*, Jan. 3, 1924.

Philadelphia, Pa.: The death rate in Philadelphia increased slightly in 1923, being 13.87 per 1,000 population as compared with 13.25 in 1922. Births numbered 40,990 in 1923 as against 40,673 in 1922. The increase in population was estimated to be about 28,000. Alcoholism caused 96 deaths, about 3 times as many as for 1922 (33). Injuries caused by automobiles were responsible for 296 deaths, an increase of 31 over the previous year.—*Cincinnati Enquirer*, Jan. 3, 1924.

Chicago, Ill.: Chicago in 1923 retained its position as one of the healthiest cities in its class, the death rate being 11.75 per 100,000 population. This rate is 14 per cent lower, or 1.93 per 1,000 deaths lower, than the average death rate for the previous decade. Notable reduction in the death rates from scarlet fever, diphtheria, diarrheal diseases and those due to congenital debility and malformations have been effected during the past year. The leading cause of death was organic heart disease, which caused 5,193 out of the 33,940 deaths recorded during the year. Pneumonia has the highest toll of deaths in the group of infectious diseases class, and increased by 1,000 deaths during 1923. The infant mortality rate was 88.8 per 1,000 births.—*Chicago Weekly Bulletin*, 17:297-298, Dec. 29, 1923.

Toledo, O.: The provisional 1923 death rate for Toledo was 12.50 per 1,000 as compared with 11.74 in 1922. The number of violent deaths in 1923 (277) was larger than for 1922 (257). The automobile deaths numbered 57 in 1923, against 42 in 1922 and 36 in 1921.—*Toledo Blade*, Jan. 1, 1924.

SANITARY ENGINEERING

ABEL WOLMAN, C.E.

Disposal of Street Sweepings and Garbage.—Tabulation of methods employed in nearly two hundred cities.—*Pub. Works,* 54:352, (Nov.) 1923. A. W. B.

✤

Notes on the Proper Placing of the Slots in Imhoff Tanks.—The slot of a two-story tank should be placed with due consideration of the progress of digestion which will have been attained at the time when the fresh solids (without shrinkage) would have accumulated to a depth equal to distance between hopper and slot, and that horizontal dimensions of the tank should be such that solids shall be evenly distributed in so far as possible. Complete data shows that great improvement in operation may result from small changes in distance between slot and hopper.—John R. Downes, *Pub. Works,* 54:363, (Nov.) 1923. A. W. B.

✤

The Sludge Problem.—Methods recently employed by Milwaukee, Chicago, Baltimore, Rochester and Houston toward solving sewage sludge problem.—*Pub. Works,* 54:366, (Nov.) 1923. A. W. B.

✤

Alum, an Aid in the Filtration of Activated Sludge.—Uniform success in use of aluminum sulphate in the pretreatment of activated sludge for pressing has been attained at three sewage treatment plants of the Sanitary District of Chicago. Alum is preferable to acid as an aid to filtration since it is safer to handle, decreases time of filtration, it is as cheap, gives a clean filtrate and it is not necessary to control the amount within narrow limits.—F. W. Mohlman, *Eng. News Rec.,* 91:1015, (Dec. 20) 1923. A. W. B.

✤

Supervision of Water Treatment Plants in Michigan.—Regulation requiring that reports on the laboratory examination of treated water be submitted monthly on blanks furnished by the State Board of Health has yielded good results. The typhoid fever death rate for Michigan in 1913 was 3.6 times the rate for 1922 in the state as a whole and 4.8 times the rate in the cities which now treat their water supplies.—Maj. Edward D. Rich, *Eng. News Rec.,* 92:73, (Jan. 10) 1924. A. W. B.

City of 10,000 Builds $50,000 Water System.—Ilion, N. Y. builds dam 726 feet long and 80 feet high to impound 150,000,000 gallons of water, or a five months supply. From the new dam the water will flow to a smaller storage reservoir and will be discharged through group of 70 small nozzles, throwing a spray high into the air. After aeration water will pass through filters to 500,000 gallon underground clear-water basin. A chlorinator is kept for use in emergencies. System operates entirely by gravity. Project will be paid for from water revenues at no expense to taxpayers.—Charles Martel Niles, *Am. City,* 30:21, (Jan.) 1924. A. W. B.

✤

The Sewage Treatment Plants of Rochester, New York.—City is served by three treatment plants, the Irondequoit, Charlotte and Brighton. Irondequoit plant receives combined sewage from 250,000 population. Plant consists of coarse racks, detritus chambers, mechanically operated Reinsch-Wurl screens, Imhoff tanks and sludge beds. Portion of Imhoff tank effluent operates two 75 kilowatt hydro-electric generating units. Charlotte plant consists of grit chambers, fine screens, an Imhoff tank and sludge-drying beds, which receive flow from two 12-inch sewers. Brighton plant consists of grit chambers, fine racks, operating house, Imhoff tank, sludge beds, dosing siphons, sprinkling filters and final settling basins and at present handles 1,000,000 gallons per day. The site of this plant has been landscaped and is a popular picnic resort.—John F. Skinner, *Am. City,* 30:37, (Jan.) 1924. A. W. B.

✤

The Purification of Colored Water at Wilmington, N. C.—In a well designed filter plant success or failure in purification of a highly colored water rests almost entirely on the basin treatment. At Wilmington, regardless of retention time, velocity or mixing, it is impossible to secure decolorization unless amounts of chemicals applied are carefully balanced. Alkalinity required to react with 1 g.p.g. filter alum is 7.7 p.p.m. ($CaCO_3$). Dose of chemicals determined by floc tests in jars.—George D. Norcom, *J. A. W. W. A.,* 11:96, (Jan.) 1924. A. W. B.

Control of Stream **Pollution**.—Cities have been put to great expense to seek new sources of water supply when proper control of waste disposal would have been the wiser from an economic point of view. The absence of proper authority or control has rendered this method impossible. Places affected by pollution from mine drainage, manufacturing, tannery, dye and chemical wastes. Three lines of procedure for correcting unsatisfactory conditions due to pollution by industrial wastes, namely: (1) purification of the water; (2) treatment of the industrial waste before discharge; (3) preventing the discharge of the wastes into the water supply. Health boards should have authority to determine and enforce the best remedy.—Charles F. Dalton, *Mun. & Co. Eng.*, 65:253, (Nov.) 1923. A. W. B.

✤

Renewing a Sewage **Treatment Plant**.—Liberty, N. Y., is served by treatment plant consisting of two septic tanks, four contact beds and four strainer beds of fine cinders. Examination showed that baffles were lacking in the septic tanks, resulting in short-circuiting, contact beds were badly clogged and strainer beds were being operated incorrectly and at too high a rate. Placing hollow tile baffles in the tank, cleaning contact and strainer beds gave most satisfactory results.—W. A. Hardenbergh, *Pub. Works*, 54:343, (Nov.) 1923. A. W. B.

✤

Water Softening **By Base Exchange**.—Certain hydrous complex silicates, known as Zeolites, ordinarily containing varying percentages of iron, aluminum, alkali earth and alkali metals, are used for water softening. Zeolites have property of exchanging their associated bases, sodium and potassium, for others such as calcium, magnesium, manganese, etc., representing hardness of water. Exchange occurs when hardening salts are in greater molecular proportions than similar combinations of alkali metals. Base exchanging power is renewed by treatment with common salt solution. Experiments with treated greensand, artificial zeolites and a treated clay, to study important problems of zeolite water softeners.—Gerald C. Baker, *J. A. W. W. A.*, 11:28. (Jan.) 1924. A. W. B.

Laying Water Mains or Services in Trenches with Sewer Pipe.—In New York, when rock is encountered, placing water mains in sewer trenches is permitted. Sewer usually precedes water line and is placed several feet deeper, the water line being placed on the backfilling. Cleveland requires a ledge at least 8 inches wide be cut in the side of sewer trench; on this water connection is laid. This brings water connection not less than 1½ feet higher than sewer connection.—William W. Brush and A. V. Ruggles, *J. A. W. W. A.*, 11:255, (Jan.) 1924. A. W. B.

✤

Copper Sulphate Treatment for Algae Troubles.—Discussion of use and effectiveness of copper sulphate for algæ troubles in various parts of the country.—*J. A. W. W. A.*, 11:258, (Jan.) 1924. A. W. B.

✤

State Licenses and Training Schools for Filter Operators.—Texas and New Jersey require that filter operators be licensed. Methods employed by other states in the supervision and instruction of filter operators.—*J. A. W. W. A.*, 11:266, (Jan.) 1924. A. W. B.

✤

Garbage Piggery and Residue Drying Cheapest for Buffalo.—Reduction of 40,000 tons green garbage per year would cost 40 per cent more than feeding to hogs and disposing of residue by drying. Operation of existing piggery, discussion of bids and comparison of costs for various means of disposal after October 1, 1924, when lease on present plant expires.—H. P. Eddy, *Eng. News-Rec.*, 91:12, 479, Sept. 20, 1923.

✤

Sewage Experimental Work at Plainfield.—Chemist, bacteriologist, zoölogist and botanist employed to carry on different lines of study. Experiments to determine what organisms are present in sufficient numbers to carry on digestion processes and how these organisms accomplish purification. Tables show distribution of protozoa at different depths in Imhoff tank, and prevalence of principal groups of bacteria, during winter time. Interesting results from filter bed investigation.—William Rudolfs, *Canadian Eng.*, 45:12, 329, Sept. 18, 1923.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASES

DRS. E. R. HAYHURST and N. C. DYSART

What Industrial Hygiene Legislation Should Cover.—1. Care of the pregnant wage earner.

2. Child labor, stressing the need for the physical examination of the child.

3. Seats for female employees, with care to provide a proper seat in order to avoid fatigue.

4. Hours of labor—female employees, providing the prohibition of night work, and at least 55 minutes for the midday meal.

5. Washing facilities, with especial provisions for the dangerous trades.

6. Eating facilities, again with especial provisions for the dangerous trades.

7. Plant cleanliness, with especial provisions for the dangerous trades.

8. Drinking water, adequate and convenient, with prohibition of the common cup.

9. Heating and ventilating, with especial provisions for dust and fume removal.

10. Vocational diseases including mechanical means for the prevention of poisoning, physical examinations of process workers and the cautioning of employees in regard to the hazards involved.—Francis D. Patterson, *Labor and Industry*, Pennsylvania, (July, 1922) Vol. I, No. 3, pp. 20-22.

✤

Man's Efficiency and the Factors Which Influence It.—Two types of efficiency are spoken of in connection with the animal body. One type is the mechanical efficiency in the engineering sense—*i.e.*, the ratio which exists between the heat equivalent of the external muscle work done and the energy output of the subject during the performance of the work in question. This problem has attracted many workers, and there seems to be a general consensus of opinion that the efficiency of man in the performance of external work is *about 20 per cent gross and 25 per cent net.* In the other type, industrial or productive efficiency, the capacity of the individual to perform effective work is dealt with, judged, for example, by his output in unit time. So far as the worker is concerned, the whole object in industrial efficiency is undoubtedly to get the greatest output with the minimum of effort. The determination of mechanical efficiency is fairly readily carried out, but it is very difficult to get an accurate gauge of industrial efficiency. At bottom they are closely related, and both are physiological problems.

There are at *least four factors* which play predominant rôles in the attainment of maximum efficiency—viz., *the rate* of the performance of work, the amount *of rest offered* or taken by the subject, *the rhythm* with which the work is performed, and the *work habit* developed by the worker.—E. P. Cathcart, *The Lancet* (London), No. 5167, Vol. CCIII (Sept. 9, 1922), pp. 547-548.

✤

The So-Called Habituation to "Arsenic."—Schwartze, experimenting upon rats, rabbits and chickens, finds that the toxicity of different preparations of arsenious oxide administered undissolved, seems to be dependent, at least in great part, upon the state of the subdivision of the oxide. The finer the particles of the preparation the more potent it is and *vice versa.* "In the light of the facts presented in this paper, therefore, the mere consumption with impunity of large doses of undissolved arsenious oxide is not proof that habituation exists. The toleration of such large doses may be due not to any attribute inherent in the consumer (*i.e.*, an immunity), but to an attribute inherent in the preparation of arsenious oxide consumed, namely, its relatively slow solubility, which has been further decreased due to its coarse state of subdivision."—Erich W. Schwartze, *Jour. Pharm. & Experimental Thera.*, Vol. XX, No. 3 (October, 1922), pp. 181-203.

✤

The Influence of Benzol Upon the Body—The authors state that benzol acts not only on the blood elements but exerts a breaking-down influence upon body tissues as a whole. The proof of this is a sharp rise in certain waste products, namely, creatine and total nitrogen. This occurs within a very short period after injections of benzol under the skin and the phenomenon is far in excess of that found in ordinary starvation. Rabbits were used for the determination.—Underhill, Frank T., and Harris, Benedict R., Yale University, *Jour. Ind. Hyg.*, IV, No. 11, March, 1923, p. 491.

Occupational Diseases Reported in Ohio.—The two following tables may be of interest to those who are following the occupational disease question in the United States. In Table I is given the types and numbers of occupational diseases *reported* to the Ohio State Department of Health for the fiscal year ending June 30, 1922:

TABLE I.

Ammonia gas poisoning	1	Dinitro-benzol	3
Anilin poisoning	8	Lead poisoning	178
Arsenic poisoning	1	Mercury poisoning	4
Benzol poisoning	26	Para-Nitralin poisoning	1
(Bronchitis)	4	Para-Toluodin poisoning	2
Carbon monoxide poisoning	1	Zinc poisoning	6
Dermatitis	521	Total	756

The number and types of *claims* for occupational diseases presented to the Ohio State Department of Industrial Relations (Secs. 1465-68a, G. C.) which became effective Aug. 5, 1921, is presented in Table II:

TABLE II.

	To June 30, 1922		To Nov. 30, 1922		
Anthrax	1		1		
Anilin	3		3		
Arsenic	1		1		
Benzol	8		16	596	non-fatal
Carbon dioxide	4		4	21	fatal
Dermatitis	221		358		
Fume poisoning	1		1	617	
Lead	130		179	12	transfers, etc.
Naphthol	1		1		
Zinc	1		6	629	Total
		Gasoline	1		
Others*	42	Unclassified*	58		
Total	413		629		

*Not under Act providing for compensation.

The schedule of recognized occupational diseases for compensation is limited to 15 designated afflictions from which it will be seen that to the end of the first fiscal year 42 other cases than those in the schedule were presented and to the end of November 30, 1922, 58 other cases were presented. In a considerable number of instances the diseases named in the above two tables did not overlap, although by law all should be reported to the State Department of Health and only those which are in the schedule for compensation are necessarily reported to the Department of Industrial Relations. It is hoped to present a later report giving the actual total of cases in the state avoiding duplications.—From assignment No. 31, *Correspondence-Study Course for Health Commissioners*, Ohio State Department of Health (January, 1923).

□

Infections from Cutting Oils and Compounds.—Individuals who have dry, chapped or blotchy or hairy skins or those afflicted with acne are especially susceptible to rashes from cutting oils. The types of trouble most often met with are (1) dermatitis, or oil rash, caused by the compound being too irritating or because the skin is too sensitive; (2) folliculitis or hair follicle—infections which may be produced by infected oils or by the bacteria on the patient's own body entering an irritated skin; (3) furunculosis or boils, from the same source, and (4) severe infections following abrasions. Prevention consists in judicial selection of men for the work, efforts toward elimination of the irritating compound, cleanliness and sanitation with regard to the machines, oils and men. Oils which are used repeatedly should be filtered and sterilized. Soap and water should be used for washing of hands, and kerosene and gasoline should not be permitted for this purpose as they produce a drying and cracking of the hands and thus invite infection. Oils should be frequently tested for bacteria, and men who are developing an infection or dermatitis should be removed from work in the oils.—Hall, A. C., *National Safety News*, Vol. VIII, No. 2 (August, 1923), p. 33.

Causes of Absenteeism Among Store Workers.—An article treating of the causes of absenteeism in merchantile establishments is interesting inasmuch as the application of preventive medicine in such organizations is of comparatively recent development. Records collected for a period of six months and including both winter and summer months demonstrate that acute diseases of the upper respiratory tract cause almost 40 per cent of absenteeism. Although 65 per cent of the employees are women, the writer could attribute only about 7 per cent of absenteeism to dysmenorrhea. Other illnesses and their percentages were headache, 6.9; gastrointestinal, 6.3; nervous-functional, 5.2; injuries, 4.8; etc. Women have an absence rate over two and one-half times that of men and married women are absent 58 per cent more than unmarried. The writer believes that women are more susceptible to all types of illness than men and that they are more likely than the men to consider minor illness sufficient ground for absenting themselves from work. Absences among employees over nineteen years of age are 41 per cent higher than among those under that age. The rate of absenteeism is much higher among those classed (when entering employment) as having physical defects of more or less importance, such as bad teeth, poor refraction, underweight, and hernia. About 600 out of 3,000 days of absence are due to unpreventable causes. Efforts to reduce absenteeism should be directed along two lines: (1) The prevention of illness and injuries, and (2) improvement of the physical condition of employees. The most important problem is the prevention of upper respiratory infections.—C. A. Swan, Halle Bros. Co., Cleveland; *Nation's Health*, Vol. V, No. 3 (March 15, 1923), p. 163.

✚

Economic Benefits of First Aid in Railroad Work.—Minor surgical ailments constitute approximately 90 per cent of the railroad surgeon's work. Financial benefits which accrue from a systematic and well-conducted campaign of first aid in the treatment of these lesser ailments has been demonstrated, in the opinion of the author, by the medical service of the C. & O. Railroad. In 1921, according to reports lodged with the Interstate Commerce Commission, one railroad paid out in claims for death and personal injuries $1,779,744, the ratio of this disbursement to its revenue being $90 to each $10,000. During the same year the ratio of disbursements for this cause on the C. & O. Railroad was $32 to each $10,000 of revenue. Many factors, of course, enter into these figures. "May we not fairly believe that one factor in the good showing made by the C. & O. Road is the high grade of surgical service rendered to its injured employees?"—L. L. Bigelow, *International Jour. of Surgery* (March, 1923).

✚

Accidents in Work Under Compressed-Air.—Some interesting figures showing the relative proportion of various causes of accidents which may be expected in tunneling operations under air pressure are set forth by R. W. Jones in *Compressed Air Magazine* for January, 1923. The record covers a period of 170 days, from January to June, during which time the pressure varied from 21 to 47 pounds per square inch, gauge pressure. Of total accidents, caisson disease composed by far the highest number with a count of 58; transportation was next highest with 35, falling tools 29, falling rock 21, falls 18, eye injuries 16, miscellaneous 14, nail punctures 13, failure of tools 9, fights 3, pinched by tools 2, electric burns 2, and powder fumes 1.

✚

Sensitization to Rebreathed Air.—The authors exposed guinea pigs to rebreathed air, including cutaneous dust, given off from other guinea pigs, until its CO_2 content was sufficient to cause excessive dyspnoea. When reëxposed to the same conditions after a lapse of 20 to 80 days, in comparisons with normal control animals, suggestive anaphylactic reactions of respiratory type occurred. Carbon dioxide, the only agent demonstrated as the efficient cause of dyspnoea was not necessary to induce the sensitive state later. There is some evidence that CO_2 tends to avert sensitization. The experiments are said to simulate the conditions of ventilation in closed habitations. The authors suggest a reopening of the problem of ventilation from the point of view of immunology and especially the influence of confined air as a predisposing factor in infectious diseases.—Sewall and Gutstein, *Amer. Jour. of Hygiene*, III, No. 3 (May, 1923), p. 300.

Industrial Health Exhibits of the U. S. Women's Bureau.—The exhibits of the *Women's Bureau* of the *U. S. Department of Labor*, Washington, D. C., are lent free of charge for limited periods to organizations or individuals who indicate that they can use them to advantage. Borrowers are required to pay express charges on the larger exhibits. Special exhibits may also be prepared for special uses. The standard exhibit includes: (1) *The large exhibit* which is for a space about 10 x 6 x 10, and emphasizes wages and hours of work; (2) *the model factory* which exhibits ideal working conditions and is set up in one piece with a single attachment for electric light; (3) *the theater exhibit*, which comprises six miniature theaters illustrating standards of hours, wages and working conditions, all in bright colors and very attractive; (4) *motion picture—"when women work,"* a two-reel film, taking one-half hour to show; (5) *posters* and *folders;* and (6) *maps* and *charts*, 24 x 39 inches, showing labor statistics both state and federal.

✚

Reclassification of the U. S. 1920 Occupation Census, by Industry.—The reclassification concerns the nine major industrial groups of the census. It is an attempt to unscramble the Federal Occupation Census, first by separating employees from employers and independent workers, and second by redistributing the groups into the standard industrial classification adopted by the International Association of Industrial Accident Boards and Commissions. Consequently the industries are classified primarily from the standpoint of hazard. The reclassification is not entirely accurate, but is considered to be of practical usefulness. It is also hoped that the study will form the basis for more accurate standard classification in the future. A detailed explanation of the methods and processes used is given at the end of the article. It was found that in the nine major industrial groups, there were 28,968,350 *employees;* 908,194 *officials and managers*; and 11,737,704 *employers and independent workers, etc.;* making a grand total of 41,614,248. The distribution under these three heads is then followed out for the major industries and trades included in the census.—Carl Hookstadt, *Monthly Labor Review*, XVII, No. 1 (July, 1923), p. 1.

International Meeting for Industrial Hygiene.—Notice has been received that a group of industrial hygienists in and about Switzerland, principally medical men, have arranged for an International Meeting for the Study of Industrial Hygiene Problems to be held in Geneva, July 18-20, 1924. The headquarters of the Committee is in the Institut D'Hygiène de L'Université de Genève. It is the idea to arrange for a world-wide congress of hygienic experts for the study of certain industrial health questions. The Advisory Committee has suggested three questions on the agenda for the first meeting: (1) Industrial lighting and eyestrain; (2) impure air in factories; (3) value of fatigue tests. All persons who have specialized in these questions are invited to attend the proposed meeting and to inform the headquarters of the Committee (address above given) as far in advance as possible. Persons who attend the meeting are not asked to pay a subscription. Endeavors will be made to obtain certain facilities for persons attending the meeting.—R. Gambier, Secretary.

✚

The Effect of Prohibition on Industry from the Viewpoint of an Employment Manager.—Since prohibition, a machine tool manufacturer reports a decrease to one-sixth of the usual number of Monday absences, while an executive of a large railroad estimates a decrease of about 40% in the number of absentees after pay day.

A poll of 526 labor leaders shows that 66 per cent feel that prohibition has been a benefit to the workingmen and their families. A poll of business men yielded that 98.50 per cent were for prohibition in some form while 1.5 per cent were against it.

An employment manager for an organization which manufactured automobile parts stated that he had failed to find any beneficial effect from prohibition in his organization and the employment manager of a large publishing house said he found more sickness because of bad liquor. The author from his own observation, thinks prohibition makes for efficiency. E. U. Benge, *Ann. Amer. Acad. Polit. and Social Science*, 106:110-120, Sept., 1923.

CHILD HYGIENE

TALIAFERRO CLARK, M.D.

Association of Personal Hygiene and Sanitation.—Education, lay or medical, is not the whole solution. Active sanitation is necessary, personal hygiene, the prevention of infection, and the treatment of disease must always be associated with improved sanitary environment. The attempt to secure the public health of either at the cost of the other will prove a failure. The problem of tuberculosis is an illustration of this fact. Its solution depends not upon one method or upon one factor but upon many—upon direct and indirect measures.

The health of mothers and children is quite fundamental. It lies at the basis of all public health and of all true national well-being. It is concerned with origins, with the source of a race. The adequate provision for midwifery and maternity nursing and treatment, for dealing effectually with measles, for supplying wholesome milk for children, for a supervising and caring for the health of the school children as well as those not yet old enough to attend school—all this is essential if we desire to rear a healthy people.

Maternity, infant welfare, school hygiene, the medical supervision of children, and health insurance are as essential parts as the direct prevention and treatment of tuberculosis, venereal disease or rheumatism, which, in their turn, are as important as the prevention of the common infectious diseases and the great business of sanitation, water supply, housing, drainage, or the control of food. Progress in public health can only be secured by an effective coördination of all these branches, bringing them all together to the solution of the problem. To fail to begin with maternity and the child, is to fail to begin wisely; to omit insurance or the steady attack on tuberculosis, or sanitation, is to lose essential service.—*Report of the Chief Medical Officer of the British Ministry of Health for* 1922.

✦

Conference on Infant Welfare.—The Third English Speaking Conference on Infant Welfare will be held at London, July 1, 2 and 3, 1924. The program will be arranged under the following general subjects:

(a) The available measures for securing healthy pregnancy and safe delivery.
(b) Education in Relation to Maternal and Child Welfare.
(c) (i) Child Migration; (ii) Child Adoption.
(d) Problems of the Unmarried Mother and her Child.
(e) Matters Relating to Creches and Day Nurseries.
(f) Public Opinion on Child Welfare.

In addition special lectures on infant care will be given on the evenings of July 1, 2 and 3; round table conferences will take place at a designated hour each day; the annual meeting of the Maternity Child Welfare Group of the Society of Medical Officers of Health will take place on the evening of July 3; a Mothercraft exhibition will be open daily; and arrangements will be made for conducted tours to a number of Maternity and Child Welfare Institutions of various kinds in London.—Miss J. Halford, Secretary, *National Association for Prevention of Infant Mortality*, London.

✦

Chronic Constipation in Children.—The correction of chronic constipation in children of the pre-school or early school age is one of the most vexatious problems confronting the physician. Excluding abnormalities of the intestinal tract the following measures are considered of importance in the order named: (1) Habit, (2) Diet, (3) Medication, (4) Exercise.

A definite time by the clock should be established for evacuation of the bowels. Probably the most effective is at a convenient interval after breakfast—twenty or thirty minutes. It is important that the child should be made to understand why he is placed on the toilet and that he should not be furnished with toys and other things with which to amuse himself, because his full attention should be given to the business at hand. In other words, this should not be made a play hour.

At the beginning the child may require some assistance in developing the habit, but enemata or suppositories are seldom recommended be-

cause they lead to abuse. Instead, laxatives are employed given in the evening in large enough doses to produce the desired result the next morning. These are given in decreasing doses over a period of about ten days.

The diet should allow enough residue in the intestines to stimulate peristalsis without the formation of scybala. Light bread, crackers, and an overindulgence of any other food of high starch content should be reduced to a minimum. The use of "fodder foods," which leave cellulose-like material in the intestinal tract should be encouraged, such as lettuce, celery, spinach, carrots, and the fresh fruits. Bran is excellent when required and is taken well with cereals, soup or broth and in the form of special breads. Bran has been found to be far superior to the addition of such substances as agar-agar. In many instances cream increases constipation by the formation of soaps, but butter on the other hand is of great assistance.

"Seldom do I see a child that drinks enough water. This is important to prevent overdesiccation of colonic contents." Stewed fruits according to the age of the child and particularly prunes, and also canned fruits and vegetables from glass jars are valuable. The citrous fruits have little value as laxatives.

"Exercise is an important factor in chronic constipation and is itself sometimes able to correct this condition. Those exercises directed particularly toward development of the abdominal muscles are valuable, but should not be used to the exclusion of other forms of exercise. Rolling is beneficial as also are exercises with trapeses and rings.

"In the more extreme cases with large flabby abdomen and dilated intestinal tract, a corset and jacket support may give valuable assistance."—Harry Calvin Berger, *Archives of Pediatrics* (December) 1923.

✣

Midwifery Practice in Glasgow.—The increasing incidence of puerperal fever in Great Britain is causing serious concern to public health officers. According to the last annual report of the chief medical officer of the Ministry of Health there were, in 1922, 1,000 deaths due to puerperal sepsis in England and Wales, a large proportion of which could probably have been avoided by the exercise of greater professional skill and care. It is believed that the provision of more skilled midwifery has had one result,—that as the general practitioner would have fewer opportunities for the practice of this specialty, they would not only become less skillful, but would regard the practice of midwifery as of small importance in comparison with other branches of their work.

In 1913 the death rate from puerperal fever per 1,000 births, in Glasgow, was 1.8 and in 1922 it had risen to 3.3 per 1,000; the actual number of deaths in the former year being 51, and in the latter 94. The case mortality in 1922 was 32 per cent and in 1913 it was 34 per cent. In 1922 a doctor attended 34 per cent of the fatal cases, a midwife in 34 per cent, an institutional nurse in 13 per cent, and in 14 per cent the patient was nursed in an institution. Coincidently with the rising death rate in puerperal fever there has been an increase in the number of emergency calls on the medical practitioner by the midwives, the charges of which are defrayed by the local supervising authority, the Glasgow corporation. In 1919 these charges amount to £230, and in 1922 £2,040. The local health officer considers two probable reasons for this great increase—either to the increased birth rate or more probably to the increasing unemployment.—*The Medical Officer*, (November 24) 1923.

✣

Training of Midwives.—The practice of midwifery by midwives is well recognized and firmly established in Great Britain. They conduct more than half of the total number of confinements. It is obvious that they should receive the training necessary to fit them to carry out their important functions.

The fundamental reason for desiring longer training for midwives and their more general employment to the exclusion of unqualified women is because the better standard of midwifery and maternal nursing which would result could not fail to help to reduce the unduly high incidence of maternal mortality and morbidity due to child birth. The problem of maternal mortality is so complex it cannot be solved by any one means, but rather by correlated action in several directions, medical, nursing, and social. An essential factor is competent professional attendance for women before, during and after childbirth, which can only be obtained by the better education of the medical student and the pupil midwife.

Suggestions in regard to midwifery training and practice may be summarized as:

1. Extension of the training of unqualified women from six months to twelve and for trained nurses from four months to six with an examination at the end of this period.

2. The curriculum should be organized on a broad basis in such a way as to include clinical and theoretical instruction in the management of labor, both in maternity wards and in the "district" and to provide that adequate attention is devoted to maternal nursing, ante-natal care, breast-feeding, care of the new-born infant, nursing of puerperal fever, ophthalmia neonatorum and the like.

3. Midwifery training schools should be graded in accordance with the facilities they are able to offer for a complete or partial training. The smaller training institutions should be affiliated for teaching purposes with institutions able to offer complementary facilities.

4. Careful consideration should be given to the establishment of a "teacher's" certificate in midwifery for midwives desiring to occupy responsible educational positions. The certificate should not aim at extending the proper functions of the midwife, but ensure that those midwives who possessed it had actually practiced as midwives for a specific period, that they had not only received suitable instruction in the theory and practice of their profession but understood the relation of midwifery to the Public Health Service and the social circumstances of the patients, and that they were themselves competent to teach students.

5. In order to raise the standard of maternity nursing and encourage midwives to undertake this work it is suggested that all monthly nurses and handy-women practicing maternity nursing for gain should be registered by the Local Supervising Authority and thus be brought within the supervision of the Inspector of Midwives.—*Reports on Public Health and Medical Subjects, No. 21, Ministry of Health*, 1923.

✤

Regulation for Creches in France.—M. Paul Strauss, minister of public health and social welfare, has submitted to the president of the republic for approval and signature a decree designed to improve conditions in connection with the creation and functioning of public and private creches. It is provided that creches must not admit children who are ill, and that for children between two and three years old parents may have the choice of the creche or the school for mothers (école maternelle), when both exist in the locality. A creche closed on account of an epidemic may not be reopened until the prophylactic measured ordered by the prefect have been carried out. Among the new provisions may be mentioned the absolute prohibition of beds in certain places; the complete separation of the creche from the consultation bureaus for infant care; the exaction of special sanitary guarantees not only with respect to the salaried personnel of the creche but also in regard to visitors who, for benevolent reasons come to show their interest in the cause or to take a practical course in puericulture. When anywise feasible, the cradle rooms should be separate and distinct from the rest of the creche; if possible, with an arrangement allowing the surveillance of the infants through a glass partition. Children able to walk should be separated from others. Absolutely free care may be accorded only when the mother's complete dependence can be shown. The mother shall not be regarded, by reason of the modest sum that she pays, as a mere assistant but rather as a partner in the care and attention that her child receives.—*Jour. Amer. Med. Assn.*, (Dec. 15) 1923.

✤

Prophylaxis of Puerperal Fever.—In a paper read at the International Congress on Puerperal Fever, held at Strasbourg on the occasion of the celebration of Pasteur's centenary, Hauch of Copenhagen advised that the douche be substituted for the bath. He does not consider palpation as dangerous as it is represented, provided, of course, it is carried out with aseptic precautions and lesions of the mucous membrane are avoided. He holds that the use of gloves has not materially changed the incidence of puerperal fever; in fact, gloves may even become dangerous if, trusting in their (often imaginary) protection, an operator neglects to scrub his hands. Schikele of Strasbourg expressed the belief that the use of gloves by midwives may give them a false sense of security and cause failure in disinfection. Bar, on the other hand, protested vigorously against this opinion. He has found that gloves give added security, although, of course, the hands must also be be placed at the disposal of midwives for use with the poor.—*Jour. Amer. Med. Assn.* (October 13) 1923.

HEALTH EDUCATION AND PUBLICITY

E. G. ROUTZAHN

For the First Time.—We have been professionally recognized. We have been given a rallying center and provided with a clearing house for the exchange of experiences and observations. The authorization of a Health Education and Publicity Section of the American Public Health Association should mean much to workers in this field. Should not the first response be coöperation in getting more new members? Should not every staff member doing any form of publicity or educational work in a governmental health agency be a member of the American Public Health Association? The Section offices wish to enroll all publicity workers, even though some may not be fortunate enough to be able to attend the annual convention, and some may not be eligible for Fellowship for several years. Let's all get in line for full professional recognition through the Fellowship which stands for professional equipment and worthy service. Let's stand with the Association which was the first to officially recognize the diffusion of social knowledge as an integral part of a great movement for the common welfare.

✚

Breaking the Record.—To tell the public of records broken in attendance, visits, service, etc., the top of a bulletin, window or other display announcement may be capped by the broken pieces of a phonograph record.

✚

Are These Your Lantern Slides?—A set of thirty lantern slides which I have before me is a fair sample of the general mediocrity of the lantern slides put out for health instruction. It seems likely, also, that this particular set was produced under conditions which are typical of the methods of "throwing them together" or of somehow or other getting into a series, numbered from one to thirty, words, pictures and diagrams loosely related to a central theme.

In this series there is an attempt to hold to a single idea, but the method of approach to it is continually changing, with no warning to the spectator. Now an argument is presented; then we see one or two slides advertising the health agencies sponsoring them. Here and there a bit of information about health is slipped in, which the spectator vainly trying to follow the disjointed series of ideas can scarcely have time to comprehend. Apparently this set is the joint effort of a group of agencies each independently contributing its bit, a logical enough procedure if we leave the audience out of account. But from their standpoint the result is quite the same as though a group of people contributed to a joint picnic supper, each bringing whatever he happened to have in pantry or icebox without any regard to the appetites or digestion of the picnickers.

But a still greater weakness than the failure to take into account the impression to be made on the audience is the waste of opportunity in using slides with so little pictorial interest. Of the thirty slides in the series, ten display only words with a symbol added in a few instances to give color. Another third of the series show small and not very interesting pictures, devoting most of the space to words. Only three or four show photographs or sketches having humor, liveliness or beauty to recommend them. The rest seem to have been used because they happened to be on hand, or some chart or picture could be turned over to the slide maker without reckoning with the layout or material submitted by anyone else.

Lantern slides are a comparatively expensive form of publicity. Aside from their initial cost they break easily; they get lost; they must be kept clean; it is a great deal of work to keep them in circulation and more work to show them. Nevertheless good slides are well worth the money and the trouble since they may be used to make information lively, dramatic, interesting and easier to understand. But if a health agency cannot afford to make slides which are attractive it surely cannot afford to make them at all since the dull ones have no advantages over the much less expensive forms of publicity, as printed matter, for example.

The minimum requirements for a set of lantern slides for health instruction or propaganda should be the logical and interesting development of the theme from one slide to the next; pictures, whether photographs or sketches, selected because they are both interesting and informing and not because "we have them in stock," captions so worded that spectators understand them quickly and remember them; layout or design that is harmonious, without being monotonously uniform; photography as good as the better motion pictures; and lettering and color at least good enough to set them apart from the advertising slides, happily becoming less common in motion picture houses.

✣

Motion Pictures Adapted to Special Audiences.—When the U. S. Children's Bureau produced its film "Well Born" to use in teaching prenatal care, the scenario writer was faced with a complex problem. The requirements were that it should be of practical value and of interest to women living in city apartments as well as to farm dwellers. Moreover, it was not to be in any way morbid or negative and so whatever story was told or situation pictured must turn out happily. The scenario written to meet these conditions told by the experiences of a young couple, Sue and George, in the city preparing for the coming of their baby, and of George's sister, Mary, and her husband, Dick, living in the country who receive advice from them. For the sake of putting life into the narrative there had to be a contrast in the unfolding of two parallel stories yet both must come through successfully.

On the whole, the film which was finally produced met admirably these difficult conditions. Nevertheless, the need for doing it illustrates one of the most serious handicaps to the production of good teaching material, that of making one film or one set of slides or one piece of literature fit all kinds of people and all sorts of uses.

Working for Dear Life, recently put out by the Metropolitan Life Insurance Company for use in promoting health examinations, is addressed specifically to the young man. It speaks his language, at least part of the time, and its hero is the type of man most young men would recognize as being like themselves. The arguments in favor of health examinations are largely expressed in terms of mechanics which would appeal to most young men. The film will undoubtedly serve an excellent purpose if it is used chiefly in places where it will reach this particular audience. Even with other audiences it will probably make more of an appeal because its message is addressed to a particular group, than if the producers had endeavored to address it to "everybody."

As the resources for health instruction are increased, it would seem as though a most worth while expenditure would be producing films, slides and literature which tell the same facts in different ways adapted to the age, viewpoint and surroundings of different types of people. We can talk so much more sympathetically and definitely to Sue and George in town, if we do not have to have one eye on Dick and Mary in the country.

✣

Telling the City Through Headlines.—"Health Commissioner Tells of Need of More Funds—44 Cents a Year Required to Provide Public Health Protection for Each Individual in City"; "Shall We Sacrifice Our Children Upon Altar of False Economy?"; "Shall We Open Door to Epidemic Invasion?" "Only Ten Sanitary Police to Cover 72 Square Miles"; "Public Health Nurses Are City's Most Useful Agents"; "How Laboratory Helped to Safeguard Healty of City"; "How City's Health Center Combats White Plague." These are large boxed title pages in a recent issue of *Cincinnati Sanitary Bulletin*, Cincinnati Board of Health.

✣

Exploitation of Tuberculosis "Cures."—Authoritative and popularly written accounts of widely discussed tuberculosis "cures" are discussed in a series of articles begun in the December, 1923, issue of *Journal of the Outdoor Life*, 370 Seventh Avenue, New York City. The series contains material for dealing with situations when "cures" receive undue publicity.

✣

Knowledge "Without Power Until It Is Accepted by the Public."—"Knowledge is without influence until it is given to the public. It is without power until it is accepted

by the public. One of the longest steps in the progress of the world was taken when that new science known as publicity was developed.

"Twenty-five years ago publicity was called press agenting and it concerned itself chiefly with such matters as Barnum's circus, political campaigns and Lillian Russell's milk baths for beauty.

"It is the new method of public education. It is a very technical, a very highly specialized important part of the machinery of the world. I cannot impress upon you too strongly the power of publicity in the world to-day—and to Herbert Hoover more than any other person in the world is due the credit for the perfection of that new practical public-spirited standard for publicity. He got together the minds that could develop this work which could appeal to the best that is in the nation.

"One generation ago public opinion was not a power comparable with its force to-day because it lacked the cohesion and impetus of publicity. Publicity is another word for service to the multitude."—From address by Mrs. William Brown Meloney, at convention of American Child Health Association, Detroit, 1923.

✚

Mother and Child.—This official publication of The American Child Health Association appears with the January issue in a new form. The pages have been doubled in size, have an attractive typographical appearance, and are well illustrated, and the name has been changed to *The Child Health Magazine*.

An editorial announcement reads as follows: "With this issue, *Mother and Child*, for the last four years the official publication of the American Child Health Association and the American Child Hygiene Association, becomes *The Child Health Magazine*. We hope you will think that the changed form is a vast improvement and that you will like the increased content and scope of the magazine. We ask you to consider this issue as the first step in transforming a pioneer publication into a big national journal of child health activities."

✚

Publicity Sessions at Toronto in June.—At Toronto, during the week beginning June 25, in connection with the National Conference of Social Work, the Committee on Publicity Methods will offer a full program for workers in publicity and community education. An exhibit of publicity material, a library of books on publicity methods, a headquarters for conference, consultation hours with specialists, and nine dinner, clinic and other sessions will be held. One clinic will take up money appeal letters. The prize play, which may be on a health subject, will be presented by a local "little theatre" cast. Full particulars will be supplied by the Committee on Publicity Methods, 130 East 22d St., New York City.

✚

$250.00 for a Play.—This prize is offered by the Committee on Publicity Methods in Social Work for a one act play dealing with some phase of present day social problems. Manuscript must reach the Committee March 15, 1924. "The plays should be written for an adult audience and must deal with some phase of present day social problems such as are found, for example, in the fields of child welfare, immigration or public health. They will be judged on the basis of their value as entertaining drama and the importance of their social message. The play must be a one act play to last in presentation not more than forty-five (45) minutes. The approximate playing time must be stated on each manuscript." Further details will be supplied by the Committee on Publicity Methods, Mrs. Mary Swain Routzahn, Chairman, 130 East 22d St., New York City.

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The Fifty-third Annual Meeting of the American Public Health Association will be held at Detroit, Michigan, during the week of October 20th, 1924.

PUBLIC HEALTH LEGISLATION

JAMES A. TOBEY, LL.B.

PROGRESS ON MATTERS PREVIOUSLY DISCUSSED

A New Department of Public Welfare.—The Secretary of the Interior, Dr. Hubert Work, has outlined a new plan for the reorganization of the Interior Department which he has submitted to the joint Congressional Committee on Government Reorganization. Secretary Work's plan provides for four divisions of his Department:

Bureau of Education
Bureau of Public Health
Bureau of Public Works
Bureau of Territorial Affairs.

The Secretary asserts that the Surgeon-General of the Public Health Service should be *ex officio* Secretary of the proposed Bureau of Public Health.

Incidentally, the Chairman of the National Health Council has been authorized to appoint a committee to consider this whole matter of a Federal Department of Welfare or Health.

✤

Pollution of Navigable Waters.—S. 1942. This bill, which passed the Senate on January 16, makes it an offense, subject to fine and imprisonment, to discharge refuse oil from any ship into the coastal waters so as to be injurious to health or dangerous to property. The bill is intended especially to protect the Atlantic coast summer resorts where the ocean has been polluted by excessive quantities of oil and refuse, which have become a menace to health and bathing and destroyed great quantities of fish and oysters.

✤

Reclassification and Nurses.—The House of Representatives passed a resolution on December 20 calling upon the Reclassification Board to submit all records of its meetings during which salary schedules have been under consideration. This resolution was passed because of the complaints made by nurses employed in the Veterans' Bureau Hospitals and the Public Health Service, who are given a sub-professional service status under a ruling of the board. Numerous other complaints by various groups of federal employees have also been made to many rulings of the board.

It is estimated that there are approximately 3,000 government nurses adversely affected by the decision refusing them full professional recognition, similar to doctors and lawyers.

The reclassification law fixes the minimum and maximum salaries of the professional service at $1,860 and $2,400 respectively, whereas the sub-professional service has a minimum and maximum salary of only $900 and $1,260 respectively. The effect of the ruling of the board in regard to nurses would actually reduce the salaries of graduate nurses now employed in the Government service.

A bill (H.R. 5723) has been introduced to abolish the Bureau of Efficiency, which has been a storm center in this matter.

✤

NEW MATTERS

Commission for Sanitary Engineers.—S. 1687. This bill would give the same commissioned status to sanitary engineers as is now enjoyed by medical officers in the U. S. Public Health Service. A more inclusive bill, making similar provisions, but also reorganizing the Public Health Service, has been drafted and will be introduced in the near future.

✤

Regulating Traffic in Clinical Thermometers.—S. 1671. This bill would require the U. S. Bureau of Standards to inspect and test all clinical thermometers under regulations fixed by the bureau. It would make it a penal offense for thermometers to be imported or offered for transit in interstate commerce unless they were made in accordance with these standards.

✤

Promotion of Physical Education.—H. R. 4800. This measure has for its purpose the extension of opportunities of physical education for children between the ages of six and sixteen and authorizes the United States Commissioner of Education to "make and publish recommendations to aid the states in studies, demonstrations and reports in the combat of physical education in elementary and secondary schools." The bill follows the Sheppard-Towner Maternity Law in its method of distributing federal funds to the

states on the assumption that the states will themselves appropriate money for coöperation with the federal government in the purposes of the bill.

A similar bill has been before the last few sessions of Congress and has been known in the past as the "Fess-Capper Bill."

✦

Hospitalization of **Veterans.**—The proposal of Director Hines of the Veterans' Bureau that all veterans receive free hospital treatment, irrespective of the origin of the ailments, has received the approval of the House Committee on Public Buildings and Grounds. The committee has incorporated in the Veterans' Bureau Hospitalization Bill, provisions carrying the Hines proposal into effect. The Director expects to be able to provide free hospital treatment, food and medicines at relatively small additional cost to the government above the amount required to keep up the present bureau hospitals. Additional data has been presented to the committee by General Hines for the completion of the present hospital system which will require an expenditure of about six million, five hundred thousand dollars. The Committee on Public Buildings and Grounds has agreed to report favorably a bill carrying such appropriation. This will make a total of forty-seven million, five hundred thousand dollars, provided for hospitals for ex-service men.

✦

Legislative Department of New York State Journal of Medicine.—With the January, 1924, issue the *New York State Journal of Medicine*, which is the official organ of the Medical Society of the State of New York, greatly expands its scope, especially its legal and legislative departments. This issue contains eight pages of legislative notes, including a discussion of medical practice, proposed bills, and opinions from several sections of the state. The legal section, conducted by Mr. George W. Whiteside, an attorney, discusses the legality of chiropractic and also reports a trial for morphine poisoning alleged as cause of death of an infant.

This expansion of the legal side of medicine in a prominent state medical journal is an interesting development and is another indication of the fact that physicians are beginning to realize the importance of the legal phases of their profession. Sanitarians would do well to follow suit in paying more attention to the legal aspects of public health.

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STATE HEALTH NOTES

Illinois

Miss Minnie H. Ahrens has recently resigned as Director of Nursing, Central Division, American Red Cross, with headquarters at Chicago. Mrs. Elsbeth H. Vaughan, Director of the Bureau of Public Health Nursing of the Michigan State Department of Health, has accepted the appointment and will assume her new duties on April 1.

✦

An investigation has recently been made of all social hygiene clinics in the state which draw funds from the department for full or partial support of the physician in charge. The report indicates that all of these clinics are complying with the rule of the department which requires that all patients who are able to pay shall be referred for treatment to physicians in private practice.

The greatest number of public health nurses employed in any one county in the state, except Cook, is 20 in Rock Island County. Next comes Winnebago with 19, Sangamon with 17, Kane and Will with 14 each, and Peoria with 13. Lake, La Salle, Macon, Madison, and St. Clair have 10 each. Champaign and Henry each employ 7, while 65 other counties maintain from 1 to 5 each.

✦

As a direct outcome of a sharp outbreak of typhoid fever last fall, due, it seems, to polluted public water supply, the city of Chicago has employed a sanitary engineer whose whole duty will be to supervise the public water supplies of that great city. This action was recommended by the state department of public health after a very careful and full investigation into the circumstances that surrounded the typhoid fever epidemic last fall.

The state department of public health, with the coöperation of the State University, will hold a conference in the near future for the benefit of the operators of water-purification plants. The meeting, which will be the first of its kind in Illinois, will take place at Urbana, probably about the middle of March. Interest in the conference is very general, as reflected by the heavy percentage of favorable replies to an invitation extended to all operators in the state. If, for any reason, an operator has failed to receive an invitation he is hereby extended one and urged to accept. Urbana was chosen as the place for the meeting chiefly because of opportunities for inspecting a plant that meets with requirements for practically demonstrating subjects to be discussed at the conference.

✤

Mr. A. W. Hedrich, formerly secretary of the American Public Health Association, has been appointed Director of Surveys of the Chicago Health Department.

✤

New York

The State Department of Health has started the publication of *Health News*, a weekly organ furnishing information on current events in Public Health to Health Officers, Public Health Nurses, Physicians, and others interested in public health work. The nurses' bulletin has been discontinued. The first issue of the new publication appeared on January 7, 1924.

✤

Tennessee

Dr. H. S. Mustard, for some time Health Officer of Preston County, West Virginia, has been appointed director of the Southern Demonstration of the American Child Health Association, to be held in Rutherford County.

✤

New Jersey

Last year New Jersey had the lowest typhoid fever rate ever recorded in the state. During the year 626 persons were reported as suffering from typhoid fever; a case rate of 18.5 per 100,000 persons. The lowest rate hitherto recorded was 19.5 in 1919.

An effort is made by the State Department of Health to induce physicians to ascertain and report the source of all recent venereal infections in making their case reports. Through a number of such reports a hitherto unrecognized vice district was discovered in the vicinity of Asbury Park. The township health officer having jurisdiction secured evidence of the existence of the houses, and when the information was turned over to the county prosecutor he secured additional evidence which resulted in the indictment of all of the operators of these houses. The trial of what was considered the weakest case resulted in a conviction and the proprietor was found guilty of the charges brought. The other cases are now being tried and it is believed will be convicted.

✤

Mr. William Wilsey, formerly health officer of the city of Perth Amboy and later secretary of the Middlesex County Tuberculosis League, has been appointed full-time health officer of Hackensack to succeed Mr. Malcolm Lewis, who resigned on January 1.

✤

Michigan

The inhabitants of Beaver Island, usually marooned every winter by the ice of Lake Michigan, will not be without the services of a physician this year. Dr. Russell Palmer has been appointed to see to that, personally.

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CONFERENCES, CONVENTIONS AND MEETINGS

February 25, Wyoming Public Health Association, Cheyenne, Wyo.

February 28-March 1, Association of American Medical Colleges, Omaha, Neb.

March 3-5, Council on Medical Education and Hospitals of the A. M. A., Chicago, Ill.

March 3-5, Federation of State Medical Boards of the United States, Chicago, Ill.

April 8-10, Canadian Tuberculosis Association, Ottawa, Canada.

April 16-19, American Association of Anatomists, Buffalo, N. Y.

April 20-21, Western Electro Therapeutic Association, Kansas City, Mo.

April 23-24, American Physical Education Association, Kansas City, Mo.